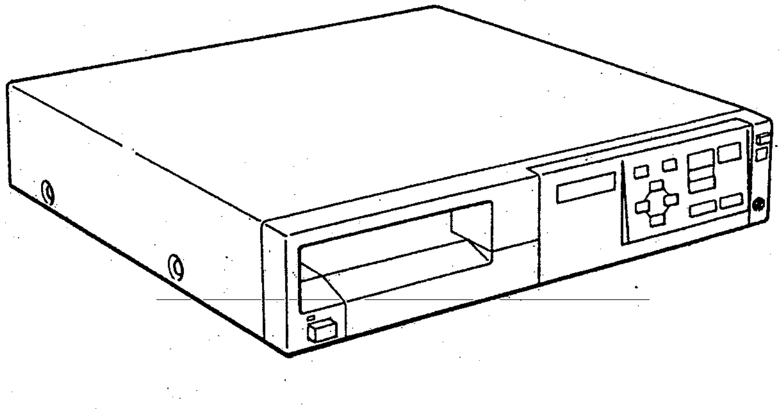
SONY®

COLOR VIDEO PRINTER

UP-1800EPM
UP-1850EPM

SERVICE MANUAL



WARNING !!

AN ISOLATION TRANSFORMER SHOULD BE USED DURING ANY SERVICE TO AVOID POSSIBLE SHOCK HAZARD, BECAUSE OF LIVE CHASSIS.
THE CASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO THE AC POWER LINE.

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS INDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COPMONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

CONTENTS

Section *Page*

1. GENERAL

1-1. Specifications 4
1-2. Location and Function of Parts and Controls 6
1-3. System Overview 10
1-4. Before Printing 11
1-5. Making Full-Size Printouts 14
1-6. Making Variations of Printouts 17
1-7. Making Printouts with a Caption 27
1-8. Deleting the Images Stored into Memory Pages 29
1-9. Connections 32
1-10. Preparing the Remote Control Units 34
1-11. Adjusting the Printout Quality 35
1-12. Printer Initial Setup 38
1-13. Error Messages 50
1-14 Troubleshooting 52

2. DISASSEMBLY

2-1. Removal of Cabinet Assembly 53
2-2. Removal of Door Panel Sub Assembly 53
2-3. Removal of IF-29 and IF-28 Boards 54
2-4. Removal of Mechanism Deck Assembly 54
2-5. Removal of MD (P231) Assembly 55
2-6. Removal of Main Board (FMY-10P Board, VA-14 Board) Assembly 55
2-7. Removal of Switching Regulator 56
2-8. Removal of Cassette Entrance Guide Assembly 56
2-9. Removal of HM-22P(H) Board 57
2-10. Removal of Stepping Motor Assembly 57
2-11. Removal of Motor Bracket Block Assembly 58
2-12. Removal of Ribbon Motor Assembly 58
2-13. Removal of Head Driving Block Assembly 59
2-14. Removal of Head Drive Motor Assembly 59
2-15. Removal of Upper Guide Assembly and Top Plate Block Assembly 60
2-16. Removal of Cassette Guide 1 and Paper Feed Assembly 60
2-17. Removal of Head Assembly and Head Power CAM Block Assembly 61
2-18. Removal of Thermal Head 61

3. DIAGRAMS

3-1. Circuit Boards Location 62
3-2. Overall Block Diagram 64
3-3. Analog Block Diagram 67
3-4. Digital Block Diagram 71
3-5. System Cotrol Block Diagram 75
3-6. Power Supply Block Diagram 79

4. Printed Wiring Boards and Schematic Diagrams

4-1. Frame Schematic Diagram 83
4-2. Printed Wiring Boards and Schematic Diagrams 87
4-3. Semiconductors 177

Section *Page*

5. EXPLODED VIEWS

5-1. Cabinet Assembly 198
5-2. Chassis Assembly(1) 199
5-3. Chassis Assembly(2) 200
5-4. Mechanism Deck Assembly(1) 201
5-5. Mechanism Deck Assembly(2) 202
5-6. Mechanism Deck Assembly(3) 203
5-7. Mechanism Deck Assembly(4) 204
5-8. Mechanism Deck Assembly(5) 205
5-9. Remote Control Unit 206

6. ELECTRICAL PARTS LIST 207

7. ELECTRICAL ADJUSTMENT

7-1. Preparation before Adjustment 229
  7-1-1. Equipment Required 229
  7-1-2. Connection of the Equipment 229
  7-1-3. Confirmation of the Input Signal 230
  7-1-4. How to Operate Adjustment Remote Controller RM-95 (J-6082-053-A) 231
  7-1-5. Service Mode 231
7-2. Video Circuit Adjustment (VA-14 BOARD) 242
  7-2-1. PLL Free-Running Adjustment 242
  7-2-2. INT SYNC GEN Frequency Adjustment 242
  7-2-3. Y/C Separation and Y Adjustment 242
  7-2-4. Y/C Separation and C Adjustment 243
  7-2-5. Decoder (Y) Level Adjustment 243
  7-2-6. AGC Level Adjustment 244
  7-2-7. APC Free-Running Adjustment 244
  7-2-8. DAT Adjustment 244
  7-2-9. DLA Adjustment 245
  7-2-10. COLOR Adjustment 245
  7-2-11. DEC R-BAL Adjustment 246
  7-2-12. DEC B-BAL Adjustment 246
  7-2-13. BOT-REF Level Adjustment 246
  7-2-14. Offset Level Adjustment 246
  7-2-15. R Gain Level Adjustment 247
  7-2-16. G Gain Level Adjustment 247
  7-2-17. B Gain Level Adjustment 248
  7-2-18. D/A (R), (B) Level Adjustment (IF-28 Board) 248
  7-2-19. D/A REF Adjustment 249
  7-2-20. Encoder V Level Adjustment 249
  7-2-21. Encoder Y Level Adjustment 249
  7-2-22. Encoder Chroma Level Adjustment 249
  7-2-23. Encoder R Level Adjustment 250
  7-2-24. Encoder G Level Adjustment 250
  7-2-25. Encoder B Level Adjustment 250
  7-2-26. Output Sync ON G Confirmation 251
  7-2-27. Input Sync ON G Confirmation 251
  7-2-28. Output Sync Confirmation 251
  7-2-29. Monitor Display Position Adjustment 252
7-3. Head Replacement 252
  7-3-1. Adjustment 252

SECTION 1
GENERAL

This section is extracted from instruction manual.

1-1. SPECIFICATIONS

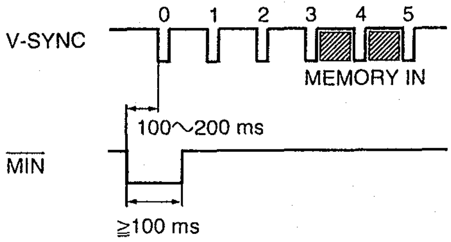
- Power requirements
  - 220 to 240 V AC, 50/60 Hz
- Power consumption
  - 1.0 A max.
  - at 25°C, 240 V AC (~)
- Operating temperature
  - 5°C to 40°C (41°F to 104°F)
- Operating humidity
  - 20% to 80% (no condensation allowed)
- Storage and transport temperature
  - –20°C to 60°C (–4°F to 140°F)
- Storage and transport humidity
  - 20% to 90% (no condensation allowed)
- Dimensions
  - About 424 × 91 × 397 mm (w/h/d) (16 3/4 × 3 5/8× 15 1/4 inches)
- Mass
  - About 8.5 kg (18 lb 12 oz)
- Printing system
  - Sublimination heat transfer printing
- Thermal head
  - 6.72 dot/mm (608 dots)
- Total gradation
  - 256 levels each for yellow, magenta, and cyan
- Frame memory
  - UP-1800EPM: One frame memory
  - UP-1850EPM: Three frame memories
- Printing time
  - Approximately 60 seconds (normal size color printing)
  - Approximately 30 seconds (monochrome printing)
- TV system
  - PAL B.G.I. standards
- Input connectors
  - RGB SYNC
    - (analog RGB signal): BNC connector
    - 0.7 Vp-p, 75 ohms (75 ohm termination switch set to ON)
  - S-VIDEO (Separate luminance (Y) and chrominance (C) signals: 4-pin mini-DIN
    - Y: 1 Vp-p
    - C: 0.3 Vp-p color burst
    - 75 ohms (75 ohm termination switch set to ON)
  - VIDEO (PAL composite video signal): BNC connector
    - 1 Vp-p, 75 ohms (75 ohm termination switch set to ON), sync negative
  - AC IN (for power input)
- Output connectors
  - RGB SYNC (analog RGB signal): BNC connector
    - RGB: 0.7 Vp-p, 75 ohms (75 ohm termination switch set to ON)
    - SYNC: 1 Vp-p
  - S-VIDEO (Separate luminance (Y) and chrominance (C) signals):
    - 4-pin mini-DIN
    - Y: 1 Vp-p, 75 ohms
    - C: 0.3 Vp-p Color bust, 75 ohms (75 ohm termination switch set to ON)
  - VIDEO (PAL composite video signal): BNC connector
    - 1 Vp-p, 75 ohms (75 ohm termination switch set to ON), sync negative
- Controls connectors
  - REMOTE 1 (front panel, for the supplied remote control unit only): special mini jack
  - REMOTE 2 (automatic printing connector): Stereo mini jack (see "Using the automatic printing capabilities" page 92)
  - RS-232C (Computer control interface): D-SUB 25-pin connector
- Ink ribbon cassette and paper sets
  - Color printing pack: UPC-1010 (100 sheets)
  - B & W printing pack:
    - UPC-1020 (100 sheets)
  - Self laminating color printing pack: UPC-1040 (75 sheets)
- Supplied accessories
  - Color printing pack UPC-1010 (1)
  - Paper tray (1)
  - Paper cover (1)
  - Remote control unit RM-5100 (1)
  - Connecting cable for the remote control unit (1)
  - Dry battery SUM-3 (NU) (2)
  - AC power cord (1)
  - Instructions For Use (1)

Using the automatic printing capabilities (REMOTE 2)

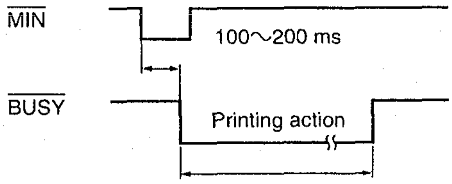
If you send the remote control pulse signals illustrated below through the REMOTE 2 connector, the printer is remotely controlled according to the remote control setting. (see page 78).
Turn on the power of the printer and select the input signal. Set the monitor display to the input signal.
Send a remote control pulse signal at timing shown below:

Regulations of remote control pulse

MEMORY IN TIMING


0
1
2
3
4
5
V-SYNC
MEMORY IN
100〜200 ms
MIN
≧100 ms

PRINT TIMING

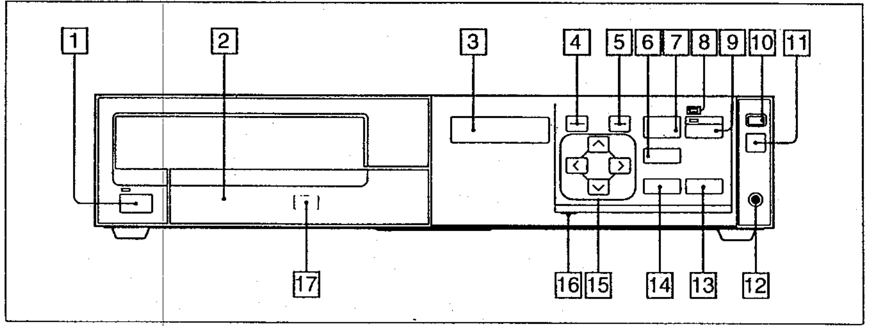

MIN
100〜200 ms
BUSY
Printing action

Design and specifications are subject to change without notice.

1-2. LOCATION AND FUNCTION OF PARTS AND CONTROLS

For details, refer to the pages indicated in (00).

Front



[1] ⏻ **POWER switch**
Press to turn the printer on or off.

[2] **Paper tray/paper cover (54)**
Paper tray: Load paper into this tray.
Paper cover: The printout is ejected to this tray

[3] **Printer window display (102)**
This window displays the messages that also appear along the bottom edge of the monitor screen. It also displays the menu screen line to which the cursor is positioned. If an error occurs, corresponding error message is displayed.

[4] **MENU button**
This button is used to display menus or to return to the regular screen from the main menu or sub menus.
The DIP switch setting allows you to make this MENU button disable to work.

[5] **EXEC button (31, 43, 47, 50)**
Press this button to return to the previous menu. Also, this button is used to erase the memory image or enter characters for a caption.

[6] **SOURCE/MEMORY button (15, 32, 34, 45, 48, 64, 66, 71, 87)**
Press to select which signal is to be output to the monitor.
The memory image and source image are changed whenever you press this button.

[7] -◇- **MEMORY IN button (15, 32, 34)**
Press to store an image into memory.

[8] **ALARM lamp (93)**
This lamp lights, in orange, when the paper has jammed or another error occurs.

[9] ❏ **PRINT button (16, 17, 33, 34)**
Press to make printouts.

[10] **PUSH OPEN button (8)**
Press to open the right front panel door when loading an ink ribbon cassette.

[11] **Remote sensor (56)**
Aim the head of the remote control unit toward this sensor.

[12] **REMOTE 1 connector (54)**
Used to Connect the remote control unit (supplied) when being used as a wired type.

[13] **STOP button (16, 33, 82, 83, 87)**
Press to stop printing midway.
Press this button when the message "STOP STOP STOP" appears.

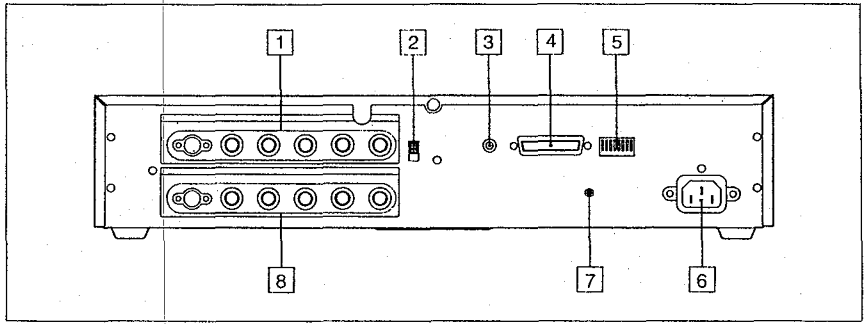
[14] **MEMORY PAGE button (25, 38, 47, 50)**
Press to select the memory page.

[15] **Cursor keys**
Press to position the cursor. Select a desired item from the menu by pressing the ∧ or ∨ button and set the value by pressing the < or > button.
Also, these keys are used to enter characters for a caption.

[16] **LCD control**
Turn to adjust the contrast of the printer window display. To increase the contrast, turn the control clockwise. To reduce the contrast weaker, turn the control counterclockwise.

[17] **PUSH indication (10)**
Press this position to remove the paper tray.

Rear



1 **INPUT connectors (52)**
Used to connect to the video equipment for source image.

Connector	Connectable equipment
S-VIDEO	Video equipment with a Y/C separated output
VIDEO	Video equipment with a composite video signal output
RGB SYNC	Video equipment with RGB/SYNC connectors

See "Important safeguards/notices for use in the medical environment" on page 2.

2 **75-ohm termination switch (for RGB input signal and composite video signal) (52)**
Normally, set this switch to ON. Set it to OFF if the input signal should drop when you connect additional equipment to the video equipment.

3 **REMOTE 2 connector (54)**
Used to connect the RM-91 remote commander (not supplied) or input remote control pulse signals for automatic printing.

4 **RS-232C connector (54)**
Used to connect the computer used to control the printer.
See "Important safeguards/notices for use in the medical environment" on page 2.

5 **DIP switches (84)**
Set the switches according to the printout size, baud rate setting for the RS-232C connector, MENU button enable/disable setting, whether locking/non-locking to an external synchronous signal, and whether the tones are turned on or off.

6 **~ AC IN connector (52, 53, 54)**
Used to connect to a wall outlet with the supplied power cord.

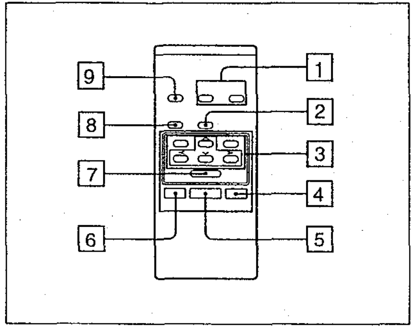
7 **⏚ Equipotential terminal**
Used to connect to the equipotential plug to bring the various parts of a system to the same potential.

8 **OUTPUT connectors (53)**
Used to connect to the video monitor.

Connector	Connectable video monitor
S-VIDEO	Video monitor with a Y/C separated input
VIDEO	Video monitor with a composite video signal input
RGB SYNC	Video monitor with RGB/SYNC connectors

See "Important safeguards/notices for use in the medical environment" on page 2.

Remote control unit

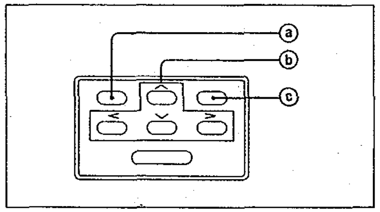


1 **PRINT QTY + and – buttons (19)**
Used to set the number of copies of one printout (on the regular screen).

Button	Operation
+	Increases the number of copies.
–	Reduces the number of copies.

2 **MULTI PICTURE button (26)**
Press to access the MULTI PICTURE sub menu directly from the any other screen.

3 **Menu control keys**



ⓐ **MENU button**
This button is used to display menus or to return to the regular screen from the main menu or sub menus.
The MENU button can be enabled/disabled by setting a DIP switch.

ⓑ **Cursor keys**
Press to position the cursor. Select a desired item from the menu by pressing the ∧ or ∨ button and set the value by pressing the < or > button.
Also, these keys are used to enter characters for a caption.

ⓒ **EXEC button (31, 43, 47, 50)**
Press this button to return to the previous menu. Also, this button is used to enter characters for a caption.

4 **PRINT button (16, 17, 33, 34)**
Press to make printouts.

5 **MEMORY IN button (15, 32, 34)**
Press to store an image into memory.

6 **SOURCE/MEMORY button (15, 32, 34, 45, 48, 64, 66, 71, 87)**
Press to select which signal is to be output to the monitor.
The memory image and source image are changed whenever you press this button.

7 **STOP button (16, 33, 82, 83, 87)**
Press to stop printing midway.
Press this button when the message "STOP STOP STOP" appears.

8 **COLOR ADJUST button (59)**
Press to access the COLOR ADJUST sub menu directly from any other screen.

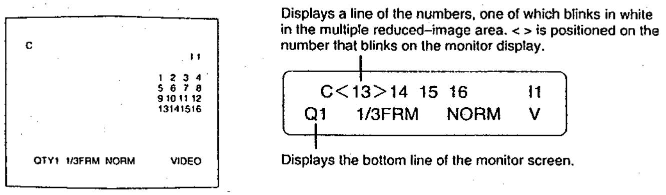
9 **MEMORY PAGE button (25, 38, 47, 50)**
Press to select the memory page.

Comparing Printer Window Display with the Video Monitor Display

The printer window display differs from the monitor display in that the display range is narrower and the number of characters is limited. The displayed contents, however, are the same.

A brief explanation of the printer window display is given below, in comparison with the monitor screen.

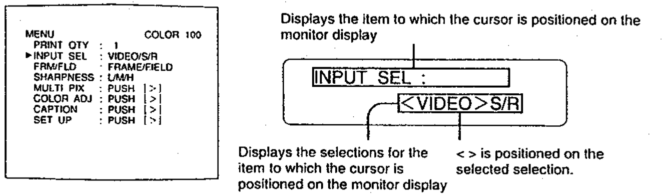
Regular screen


C
I1
1 2 3 4
5 6 7 8
9 10 11 12
13141516
QTY1 1/3FRM NORM
VIDEO
C<13>14 15 16 I1
Q1 1/3FRM NORM V

Displays a line of the numbers, one of which blinks in white in the multiple reduced–image area. < > is positioned on the number that blinks on the monitor display.

Displays the bottom line of the monitor screen.

Main menu screen and sub menu screen

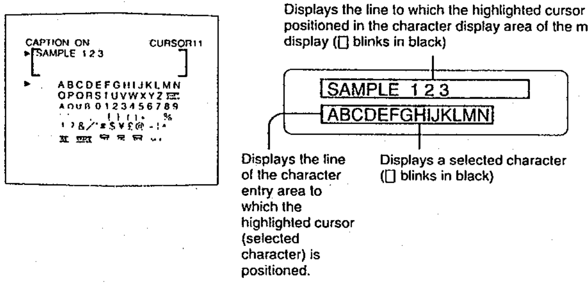

MENU COLOR 100
PRINT QTY : 1
▶INPUT SEL : VIDEO/S/R
FRM/FLD : FRAME/FIELD
SHARPNESS : L/M/H
MULTI PIX : PUSH [>]
COLOR ADJ : PUSH [>]
CAPTION : PUSH [>]
SET UP : PUSH [>]
INPUT SEL :
<VIDEO>S/R

Displays the item to which the cursor is positioned on the monitor display

Displays the selections for the item to which the cursor is positioned on the monitor display

< > is positioned on the selected selection.

CAPTION sub menu screen


CAPTION ON CURSOR11
▶SAMPLE 1 2 3
▶ ABCDEFGHIJKLMN
OPQRSTUVWXYZ
ÄÖÜß 0123456789
?&/'#$¥£@-!*
SAMPLE 1 2 3
ABCDEFGHIJKLMN

Displays the line to which the highlighted cursor is positioned in the character display area of the monitor display (□ blinks in black)

Displays the line of the character entry area to which the highlighted cursor (selected character) is positioned.

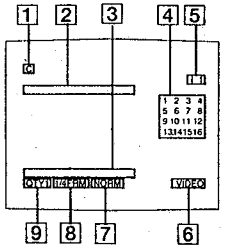
Displays a selected character (□ blinks in black)

Monitor Display

There are two types of screen display; the regular screen display and the menu screen.

Regular screen message

When you first turn on the printer, the regular screen message appears.


1
2
3
4
5
C
I1
1 2 3 4
5 6 7 8
9 10 11 12
13141516
QTY1
1/4FRM
NORM
VIDEO
9
8
7
6

1 C (Caption)
C is displayed in white when the printer is set to print a caption consisting of the date and/or comments.
C is displayed in dark blue when the printer is not set to print a caption consisting of the date and/or comments.
M is displayed in white when the printer is set to print a mirror caption.

2 Error message display area
Error messages are displayed.

3 Warning message display area
Warning messages are displayed.

4 Number of four or 16 reduced image area
When the printer is set to store multiple reduced images into memory, corresponding numbers appear to indicate the memory status.

5 I1
Displayed when the printer is set to automatically store images at preset intervals. The number corresponds to the selection made with the INTERVAL item.

6 Image type display
This indicates the type of image shown on the monitor screen.
When the image being played back from print source equipment is displayed on the screen, the corresponding print source (the input signal connector name, for example VIDEO) appears.
When an image stored in memory is displayed on the screen, MEMORY appears.

7 Print mode display

This indicates the selected print mode.
Several examples are shown below:

Display	Print mode
NORM	Makes a printout of one normal image
N2	Makes a printout of two identical normal images
N1_M	Makes a printout of one normal image whose printout area size is reduced to 70%.
MIR	Makes a printout of one mirror image
M16	Makes a printout of 16 reduced mirror images

8 Memory page display

The memory page you select appears.
The memory page whose image is being printed blinks. A memory page whose image is queued for printing lights in green.
The following shows several examples.

Display	Meaning
1/3FRM (UP-1850EPM) 1/1FRM (UP-1800EPM)	The first page is selected in frame mode (UP-1850EPM). The frame mode is selected (UP-1800EPM).
2/6FLD (UP-1850EPM) 2/2FLD (UP-1800EPM)	The second page is selected in field mode.

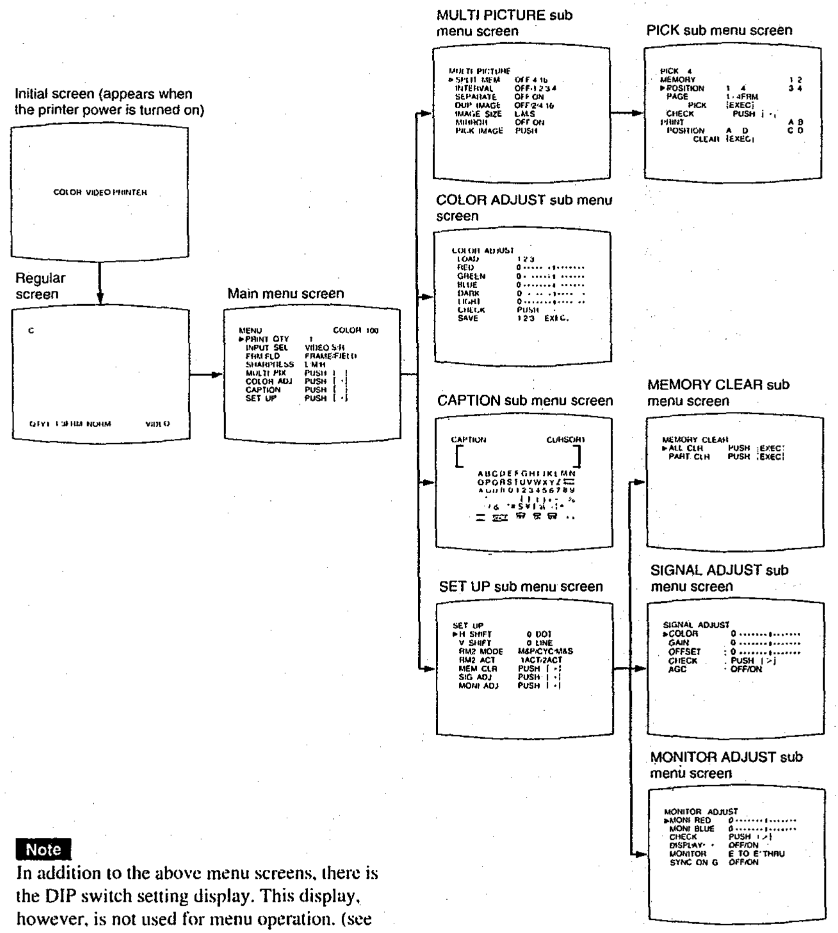
9 Number of copies to be printed

Indicates the number of copies to be printed.
This item blinks while the printer is busy. Also, the color changes to indicate the progress while making a color printout, as follows:
Printing start - yellow - magenta - cyan - printing end.
When making black and white printouts, this blinks in white.

Menu screen

Menu screen tree-chart

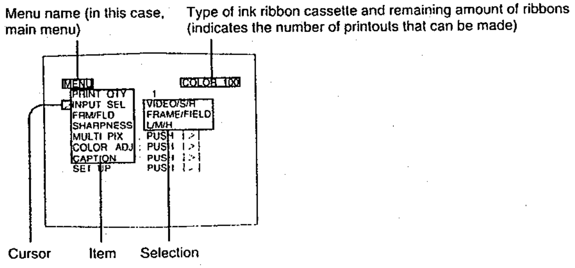
The menu screen configuration is shown using the tree-chart.


Initial screen (appears when the printer power is turned on)
COLOR VIDEO PRINTER
Regular screen
C
QTY1 1/3FRM NORM VIDEO
Main menu screen
MENU COLOR 100
▶PRINT QTY 1
INPUT SEL VIDEO S/R
FRM FLD FRAME/FIELD
SHARPNESS L M H
MULTI PIX PUSH [ ]
COLOR ADJ PUSH [ ]
CAPTION PUSH [ ]
SET UP PUSH [ ]
MULTI PICTURE sub menu screen
MULTI PICTURE
▶SPLIT MEM OFF 4 16
INTERVAL OFF 1 2 3 4
SEPARATE OFF ON
DUP IMAGE OFF 2 4 16
IMAGE SIZE L M S
MIRROR OFF ON
PICK IMAGE PUSH
PICK sub menu screen
PICK 4
MEMORY 1 2
▶POSITION 1 4 3 4
PAGE 1/4FRM
PICK [EXEC]
CHECK PUSH
PRINT A B
POSITION A D C D
CLEAR [EXEC]
COLOR ADJUST sub menu screen
COLOR ADJUST
LOAD 1 2 3
RED
GREEN
BLUE
DARK
LIGHT
CHECK PUSH
SAVE 1 2 3 EXEC.
CAPTION sub menu screen
CAPTION CURSOR
ABCDEFGHIJKLMN
OPQRSTUVWXYZ
0 1 2 3 4 5 6 7 8 9
MEMORY CLEAR sub menu screen
MEMORY CLEAR
▶ALL CLR PUSH [EXEC]
PART CLR PUSH [EXEC]
SET UP sub menu screen
SET UP
▶H SHIFT 0 DOT
V SHIFT 0 LINE
RM2 MODE M&P/CYC/M&S
RM2 ACT 1ACT/2ACT
MEM CLR PUSH [ ]
SIG ADJ PUSH [ ]
MONI ADJ PUSH [ ]
SIGNAL ADJUST sub menu screen
SIGNAL ADJUST
▶COLOR 0
GAIN 0
OFFSET 0
CHECK PUSH
AGC OFF/ON
MONITOR ADJUST sub menu screen
MONITOR ADJUST
▶MONI RED 0
MONI BLUE 0
CHECK PUSH
DISPLAY OFF/ON
MONITOR E TO E THRU
SYNC ON G OFF/ON

Note

In addition to the above menu screens, there is the DIP switch setting display. This display, however, is not used for menu operation. (see page 87)

Menu screen display


Menu name (in this case, main menu)
Type of ink ribbon cassette and remaining amount of ribbons (indicates the number of printouts that can be made)
MENU
COLOR 100
PRINT QTY
INPUT SEL
FRM/FLD
SHARPNESS
MULTI PIX
COLOR ADJ
CAPTION
SET UP
1
VIDEO/S/H
FRAME/FIELD
L/M/H
PUSH [>]
PUSH [>]
PUSH [>]
PUSH [>]
Cursor
Item
Selection

About remaining amount of ribbons

- Use the remaining amount of ribbons as a guide. The printer may not display remaining amount of ribbons depending on the type of ribbons.
- The printer starts counting from 25 when remaining amount of ribbons is less than 36

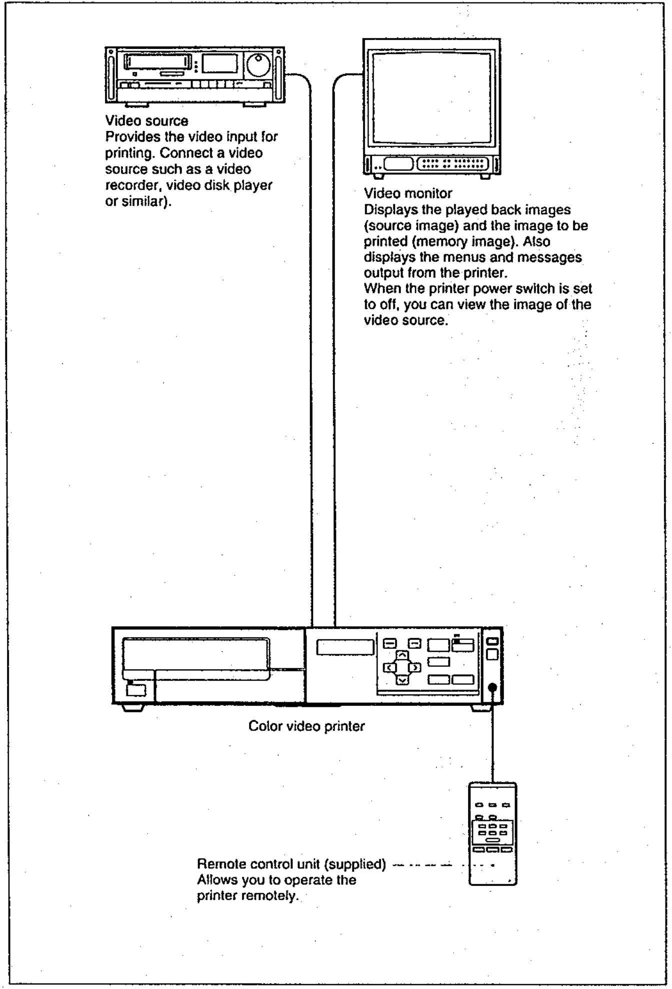
Display color

The color indicates the printer status.

Display color	Meaning
Light blue	Indicates the menu name.
Green	In the menu item column, indicates the selected item. In the selection column, indicates an item that has already been set or one that must be set.
White	In both the item and selection column, indicates that the item has not been selected or has not yet been set.
Dark blue	Indicates that this item or selection cannot be selected. They are functions which become effective depending on another item or selection settings.

System Configuration

The following shows an example printer system configuration.


Video source
Video monitor
Color video printer
Remote control unit (supplied)

Video source
Provides the video input for printing. Connect a video source such as a video recorder, video disk player or similar).

Video monitor
Displays the played back images (source image) and the image to be printed (memory image). Also displays the menus and messages output from the printer.
When the printer power switch is set to off, you can view the image of the video source.

Color video printer

Remote control unit (supplied)
Allows you to operate the printer remotely.

1-4. BEFORE PRINTING

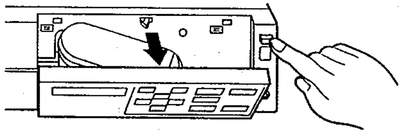
This section describes the following operations that must be made prior to start printing after installing the printer and making connections.
- Loading an ink ribbon cassette (see page 8)
- Loading paper (see page 10)
- Selecting the input signal (see page 12)

Once the above operations are done, there should be no need to subsequently perform in routine printing operations. Perform the above operations, if necessary.

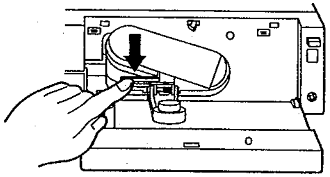
Loading an Ink Ribbon Cassette

To make printouts, an ink ribbon cassette and paper should be loaded. Both of those should be used in correct pairs. (see "Ink Ribbon Cassette and Paper" page 90)

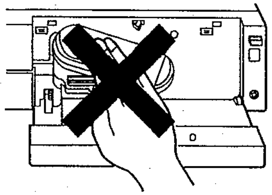
1 Push in the PUSH OPEN button.
The front panel opens.



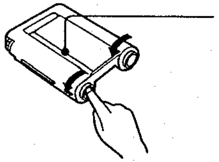
2 Remove the ink ribbon cassette by pulling down the EJECT lever.



Note
Never put your hand into the ink ribbon cassette dock. The thermal head becomes very hot. You may burn yourself if you touch it.

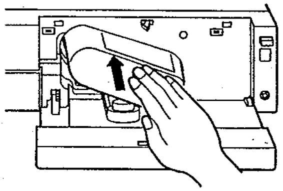


3 Take up any slack in the ink ribbon.
If the ribbon is left slack, it may be crumpled and damaged when inserted.

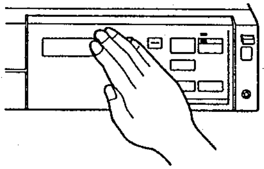


Wind the spools of the ink ribbon cassette as illustrated until a black bar extending full-width of the ribbon appears on the ink ribbon.

4 Insert the ink ribbon cassette firmly until it stops.



5 Close the front panel.



Notes

When using ink ribbon cassettes:

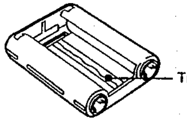
- Once an ink ribbon has been completely used, replace it. Ink ribbons are not reusable.
- Do not touch the ribbon or place the cassette in a dusty place. Body oils or dust stuck to the ink ribbon will cause imperfect printing.

When storing ink ribbon cassette:

- Avoid placing the ink ribbon cassette in a location subject:
  - – high temperatures
  - – high humidity
  - – excessive dust
  - – direct sunlight
- Store a partially used ink ribbon in its original bag.

If your ink ribbon should tear

Repair the tear with transparent tape. There should be no problem in using the remaining portion of the ribbon.



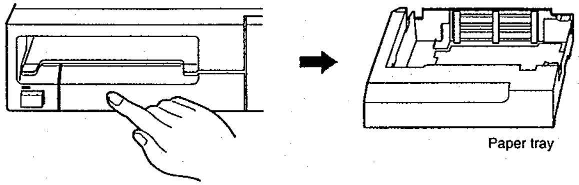
Loading Paper

Follow these steps to load paper in the printer. Use only the ink ribbon cassette and paper packed in the same carton, that is correctly in pairs. Be careful not to touch the printing surface.

Note

When loading the paper while the printer is operating, do not turn off the power. If you turn off the power, the image stored in memory will be lost.

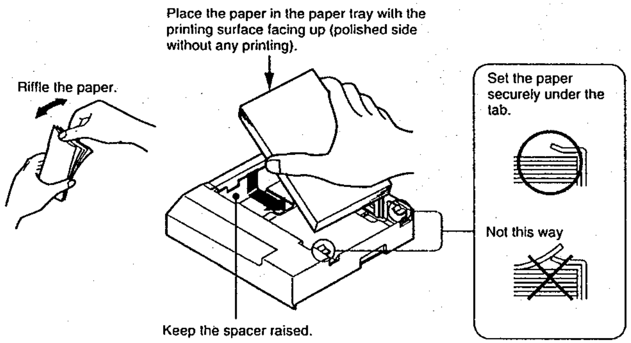
1 Push PUSH on the paper tray.
The paper tray is ejected.



2 Place the paper into the paper tray.

Notes

- The paper tray holds up to 100 sheets. When you add paper to a partly-full tray, be careful that the total number of sheets does not exceed 100. If you exceed this limit, paper jams may occur.
- Load the paper so that it lays flat in the paper tray.
  If the paper is curled, it will overflow the paper tray and the printing position may shift. If this happens, load fewer sheets in the paper tray.

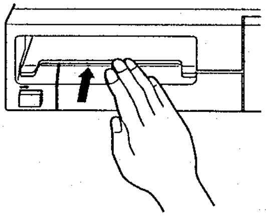

Place the paper in the paper tray with the printing surface facing up (polished side without any printing).

Riffle the paper.

Set the paper securely under the tab.

Keep the spacer raised.

3 Slide the paper tray back into the printer until it clicks into place.



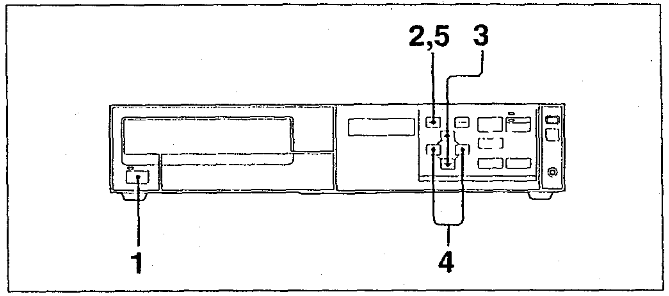
Notes

When storing paper:

- Avoid placing the paper subject to:
  - – high temperatures
  - – high humidity
  - – excessive dust
  - – direct sunlight
- Keep the package for storing unused paper.

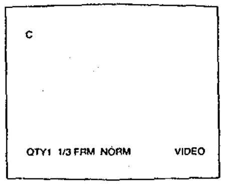
Selecting the Input Signal

Before printing, select the input signal. Once you have selected the input signal, this setting remains as is until you select another source.



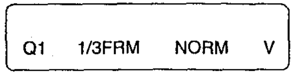
1 Turn on the video monitor and the printer.
The following message appears when the printer is ready to operate.

Video monitor screen



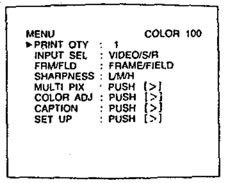
```
C

QTY1 1/3 FRM NORM          VIDEO
```

Printer window display



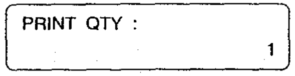
```
Q1   1/3FRM   NORM   V
```

2 Press the MENU button.
The following screen appears.



```
MENU                 COLOR 100
▶PRINT QTY  :  1
 INPUT SEL  : VIDEO/S/R
 FRM/FLD    : FRAME/FIELD
 SHARPNESS  : L/M/H
 MULTI PIX  : PUSH [>]
 COLOR ADJ  : PUSH [>]
 CAPTION    : PUSH [>]
 SET UP     : PUSH [>]
```

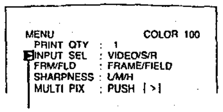
Main Menu screen



```
PRINT QTY :
                    1
```

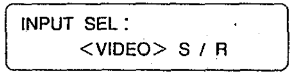
Part of the main menu

3 Select INPUT SEL by pressing the ∧ or ∨ button.



```
MENU                 COLOR 100
 PRINT QTY  :  1
▶INPUT SEL  : VIDEO/S/R
 FRM/FLD    : FRAME/FIELD
 SHARPNESS  : L/M/H
 MULTI PIX  : PUSH [>]
```

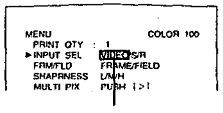
Move the cursor to INPUT SEL by pressing the ∧ or ∨ button.



```
INPUT SEL :
        <VIDEO> S / R
```

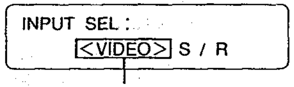
Display this message by pressing the ∧ or ∨ button.

4 Select the desired input signal by pressing the < or > button.



```
MENU                 COLOR 100
 PRINT QTY  :  1
▶INPUT SEL    VIDEO S/R
 FRM/FLD      FRAME/FIELD
 SHAPRNESS    L/M/H
 MULTI PIX    PUSH [>]
```

Switch the desired input signal to green by pressing the < or > button.
The name of the selected input signal appears in green.



```
INPUT SEL :
        <VIDEO> S / R
```

Position < > over the name of the desired input signal.

Source signal of the image to be printed	Video monitor and printer window display (The name of the selected input signal appear on the screen.)
Signal from the video equipment connected to the VIDEO INPUT connector	V → VIDEO
Signal from the video equipment connected to the S-VIDEO INPUT connector	S → S-VIDEO
Signal from the video equipment connected to the RGB/SYNC INPUT connectors	R → RGB

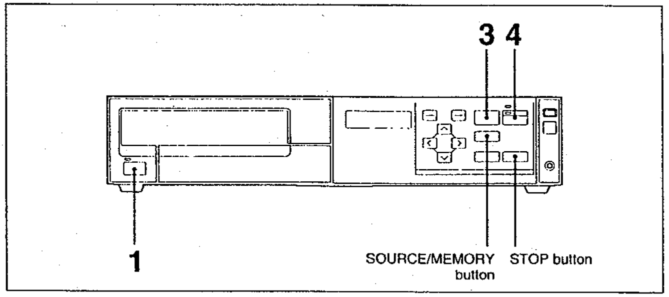
5 Press the MENU button.
The regular screen appears.

1-5. MAKING FULL-SIZE PRINTOUTS

This section explains how to make a full-size printout. The operations described here is the basic procedure for making a printout.

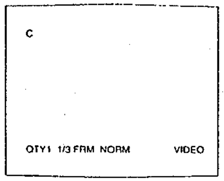
Before making a full-size printout

- All connections should have already been made. (see page 52)
- Ensure that the appropriate ink ribbon cassette/paper set is being used and that they are correctly loaded. (see pages 8, 10 and 90)
- Select the input signal to be used to make a printout. (see page 12)
- Set the memory mode to store one full-size image into memory. (see page 27)
- Select the appropriate memory page. (see page 25)

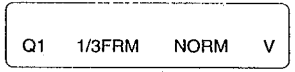


1 Turn on the video monitor and the printer.
The following message appears when the printer is ready to operate.

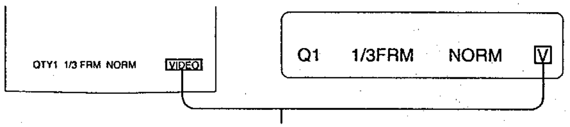
Video monitor screen



Printer window display

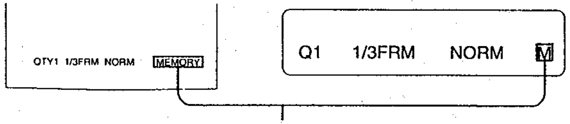


2 Start the video source.
(This operation is done using the controls of the video equipment acting as the source.)



Shows that the image from the video equipment are displayed on the screen.

3 Press the MEMORY IN button at the instant when the image you want to print appears on the screen.
That image is stored into memory.
The memory image (stored into memory) is displayed on the screen.



Shows that the images stored into memory is displayed on the screen.

If the stored image is blurred

A quickly moving image may be blurred when it is printed. If this happens, switch the FRM/FLD (frame/field) mode setting to FLD on the main menu and perform printing again. This should eliminate blur from the printout. However, since printing in field mode has a lower resolution than in the frame mode, the ultimate print quality will be slightly degraded. (see "About Memory" page 22)

To change the stored image

① Press the SOURCE/MEMORY button.
The image from the video source appears.

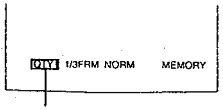
② Press the MEMORY IN button at the instant when the image you want to print appears.
The previous image is replaced.

Note

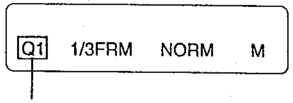
If you turn off the power, the image stored into memory will be lost. Thus, store the image into memory again when you turn on the power.

Continue to next page →

4 Press the PRINT button.
It takes about 60 seconds to make a color printout, or 30 seconds to make a black and white printout.



Blinks while printing.



Does not blink while printing

During color printing: Printing start - yellow - magenta - cyan - printing end
During black and white printing: Printing start - white - printing end

Note
Do not handle the paper until printing has been completed.

To stop printing before completion

Press the STOP button. Printing is abandoned and the paper is ejected to the print tray.

If the printer does not print

The printer will not print in the following case.
Wherever an error message is displayed on the video monitor and printer window display. (see "Error Messages" page 93)

If a black line appears on the printout

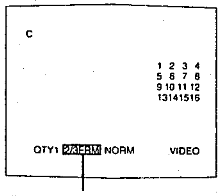
Sometimes, a black line appears on the printout, although it does not appear on the video monitor. You can eliminate the black line from the printout. (see "Changing the Printout Area" page 63)

Notes
When preserving your printouts:
- Keep printouts in a dark and cool place.
- Do not to stick plastic tape to the print. Also avoid leaving plastic eraser on top of the printout or putting the printout between things which contain plasticizer (a desk mat, etc.).
- Do not to pour alcohol or other volatile organic solvents on the printouts.

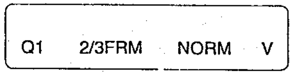
Queuing images to be printed out

You can store other images to another memory to be printed out once the printer becomes free.
When using the UP-1800EPM printer, select field mode to queue an image for printing.

1 Select the memory page to be printed, by pressing the MEMORY PAGE button.

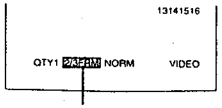


The available memory pages appear in white.

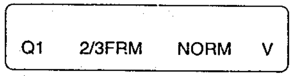


2 Press the MEMORY IN button at the instant when the image you want to print appears on the screen.

3 Press the PRINT button.
The image selected in step 2 is queued. The image is printed as soon as all previous printing jobs have been completed.



Memory page whose image have been queued for printing (lights in green)
The memory page display returns to white once printing has been completed.

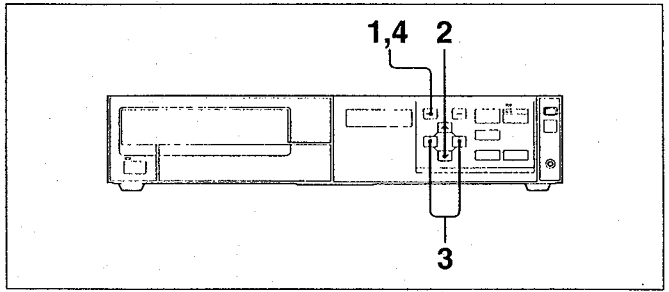


Note
Another image cannot be stored into a memory page whose image has been queued for printing.

4 To queue another memory page, repeat steps 1, 2 and 3.
(only for up-1850 EPM)

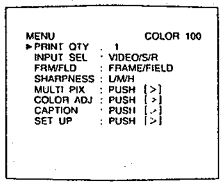
Making Multiple Copies of Identical Image

You can print up to 100 copies of a stored image.
Do the following steps before you start printing or while printing. You can change the designated number of copies any time during printing.



1 Press the MENU button.
The following screen appears.

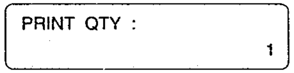
Video monitor screen



```
MENU                    COLOR 100
▶PRINT QTY   .  1
 INPUT SEL   :  VIDEO/S/R
 FRM/FLD     :  FRAME/FIELD
 SHARPNESS   :  L/M/H
 MULTI PIX   :  PUSH [>]
 COLOR ADJ   :  PUSH [>]
 CAPTION     :  PUSH [>]
 SET UP      :  PUSH [>]
```

Main Menu screen

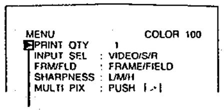
Printer window display



```
PRINT QTY :
                    1
```

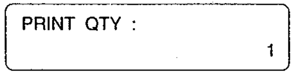
Part of the main menu

2 Select PRINT QTY by pressing the ∧ or ∨ button.



```
MENU                    COLOR 100
▶PRINT QTY      1
 INPUT SEL   :  VIDEO/S/R
 FRM/FLD     :  FRAME/FIELD
 SHARPNESS   :  L/M/H
 MULTI PIX   :  PUSH [>]
```

Move the cursor to PRINT QTY by pressing the ∧ or ∨ button.

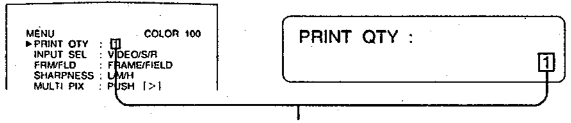


```
PRINT QTY :
                    1
```

Display this message by pressing the ∧ or ∨ button.

3 Set the number of copies by pressing the < or > button.

When setting	Button
To decrease the quantity	<
To increase the quantity	>

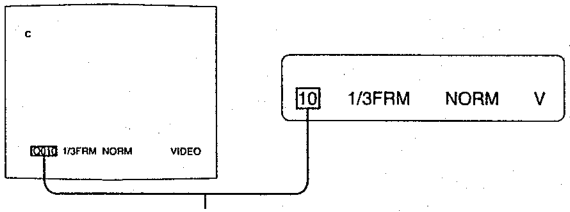


```
MENU                    COLOR 100
▶PRINT QTY   :  1
 INPUT SEL   :  VIDEO/S/R
 FRM/FLD     :  FRAME/FIELD
 SHARPNESS   :  L/M/H
 MULTI PIX   :  PUSH [>]
```

```
PRINT QTY :
                    1
```

Quantity of copies

4 Press the MENU button.
The regular screen appears.



```
c

0010 1/3FRM NORM          VIDEO
```

```
10   1/3FRM   NORM   V
```

Quantity of copies set in step 3

When paper runs out during printing

Fill the paper tray with paper and press the PRINT button again. (see "Loading Paper" page 10)

Designating the number of copies by the remote control unit (supplied)

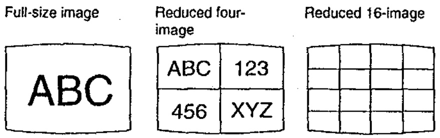
You can designate the number of copies directly on the regular screen by using PRINT QTY +/– buttons.

When setting	Button
To decrease the quantity	PRINT QTY –
To increase the quantity	PRINT QTY +

1-6. MAKING VARIATIONS OF PRINTOUTS

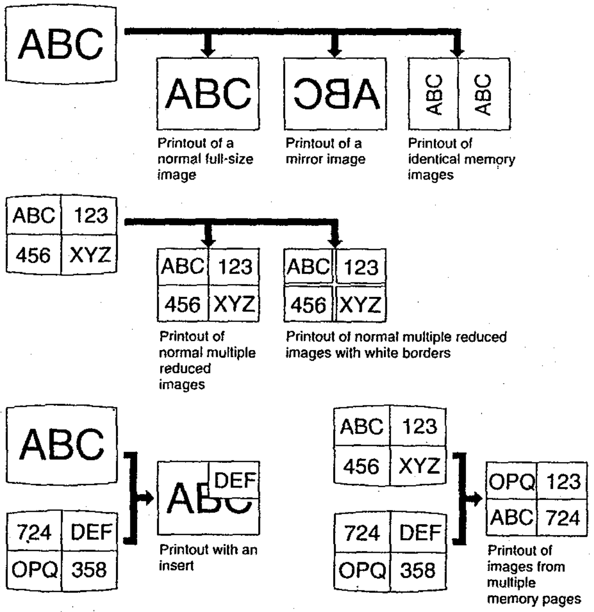
You can store various kinds of images into memory by changing the memory mode and can vary the printout of the stored images by changing the print mode.
This section explains how to set the memory mode and change the print mode.

Types of images that can be stored into memory


Full-size image
ABC
Reduced four-image
ABC
123
456
XYZ
Reduced 16-image

Types of printouts that the printer can produce

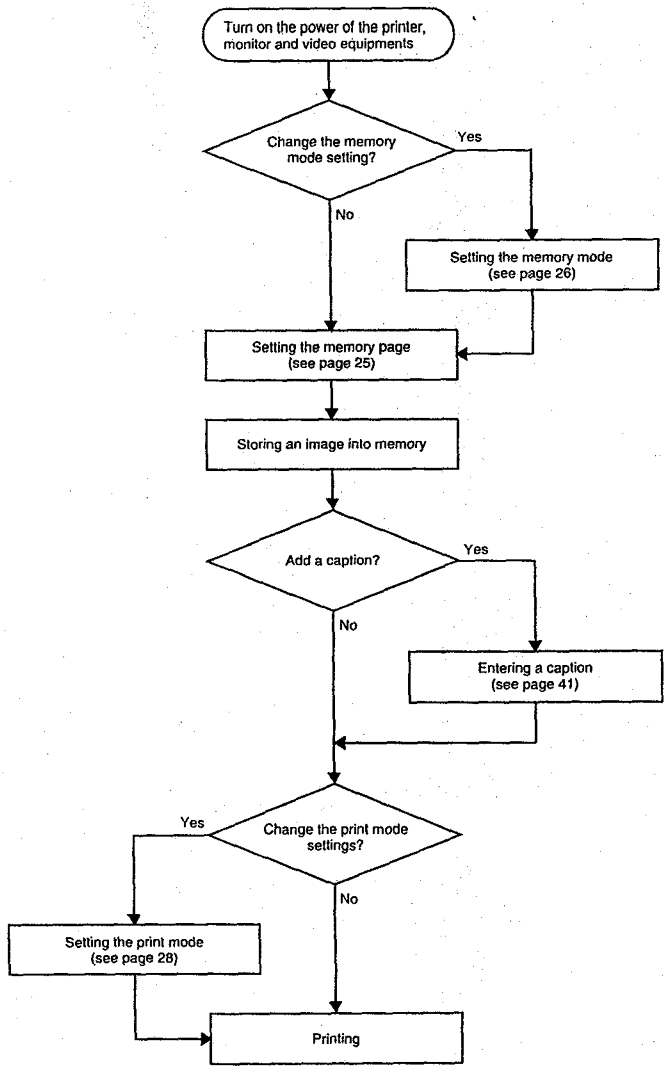
By varying the print mode, the following types of printout can be made using images stored in memory.


ABC
ABC
Printout of a normal full-size image
ƆBA
Printout of a mirror image
ABC
ABC
Printout of identical memory images
ABC 123
456 XYZ
Printout of normal multiple reduced images
Printout of normal multiple reduced images with white borders
ABC
724 DEF
OPQ 358
DEF
Printout with an insert
OPQ 123
ABC 724
Printout of images from multiple memory pages

Also, you can adjust the size of the printouts. (see page 85)
However, the size of a printout of images from multiple memory pages and the size of a printout of multiple reduced image with white borders cannot be changed.
For the printout of multiple reduced images without white borders, you can make a printout of mirror multiple reduced image and a printout of identical multiple reduced images. You can also change its size.

Printing Operation Flowchart

The following flowchart shows the flow of a printing operation.


Turn on the power of the printer, monitor and video equipments
Change the memory mode setting?
Yes
No
Setting the memory mode (see page 26)
Setting the memory page (see page 25)
Storing an image into memory
Add a caption?
Yes
No
Entering a caption (see page 41)
Change the print mode settings?
Yes
No
Setting the print mode (see page 28)
Printing

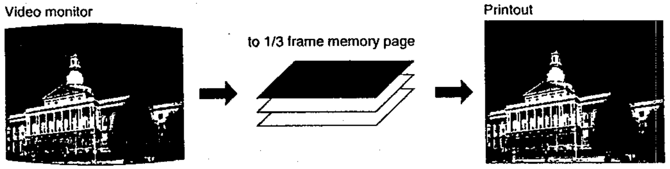
About Memory

To make a printout, it is first necessary to store the desired image into memory. The method of storing images into memory is called memory mode.
By setting memory mode, you can store a full-size image or multiple reduced images into memory. Also, the printer can automatically store images to its memory pages at preset intervals.
Also, you have to decide how to use the printer's memory to store images. Two methods of using memory are supported. One is frame mode, while the other is field mode. The number of memory images you can store depends on whether you select frame or field mode.

Frame mode and filed mode

Frame (FRM) mode

A image for one screen is stored in one memory.

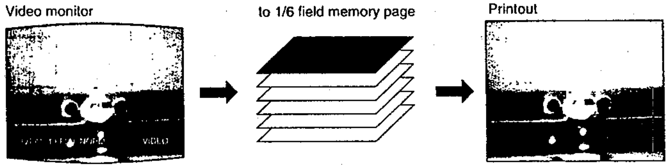


1/3FRM: The first page of three frame-mode memory pages

A still subject can be printed with high resolution.

Field (FLD) mode

One memory is divided into two, and images for the two screens are stored to the resulting memory pages.



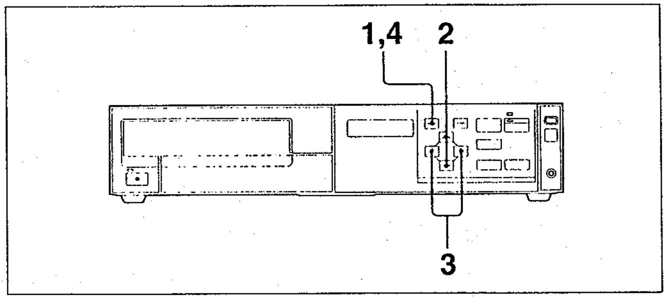
1/6FLD: The first memory page of six field-mode memory pages

A quickly moving subject can be prainted without blurring.

The above illustrations show the case of UP-1850EPM. In case of UP-1800EPM, there is one memory page in frame mode and two memory pages in field mode.

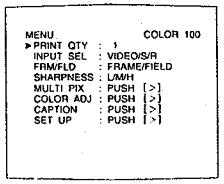
Selecting frame or field mode

Before storing an image, select frame or field mode.



1 Press the MENU button.
The following screen appears.

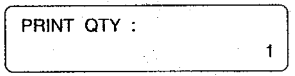
Video monitor screen



```
MENU                    COLOR 100
▶PRINT QTY   :  1
 INPUT SEL   : VIDEO/S/R
 FRM/FLD     : FRAME/FIELD
 SHARPNESS   : L/M/H
 MULTI PIX   : PUSH [>]
 COLOR ADJ   : PUSH [>]
 CAPTION     : PUSH [>]
 SET UP      : PUSH [>]
```

Main Menu screen

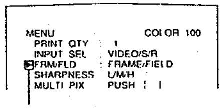
Printer window display



```
PRINT QTY :
                      1
```

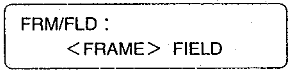
Part of the main menu

2 Select FRM/FLD by pressing the ∧ or ∨ button.



```
MENU                    COLOR 100
 PRINT QTY   :  1
 INPUT SEL   : VIDEO/S/R
▶FRM/FLD     : FRAME/FIELD
 SHARPNESS   : L/M/H
 MULTI PIX   : PUSH [ ]
```

Move the cursor to FRM/FLD by pressing the ∧ or ∨ button.

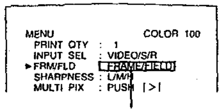


```
FRM/FLD :
    <FRAME>  FIELD
```

Press the ∧ or ∨ buttons until FRM/FLD appears.

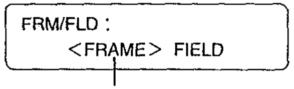
Continue to next page →

3 Select the desired mode by pressing the < or > button.



```
MENU                COLOR 100
  PRINT QTY  :  1
  INPUT SEL  : VIDEO/S/R
▶FRM/FLD     [FRAME/FIELD]
  SHARPNESS : L/M/H
  MULTI PIX  : PUSH  [>]
```

Switch the desired mode to green by pressing the < or > button.



```
FRM/FLD :
    <FRAME> FIELD
```

Position < > over the desired mode by pressing the < or > button.

FRAME: We recommend that, whenever possible, you print in this mode.
FIELD: Select this mode to reduce blurring when you print a quickly moving image.

4 Press the MENU button.
The regular screen appears.

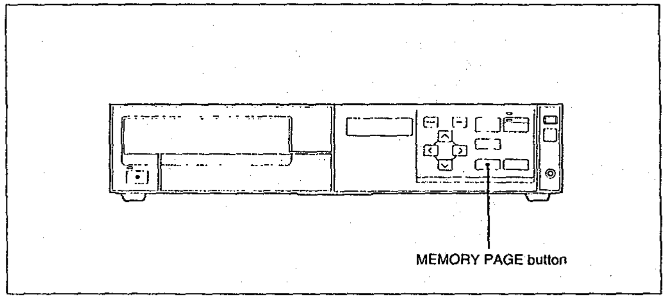
About memory pages

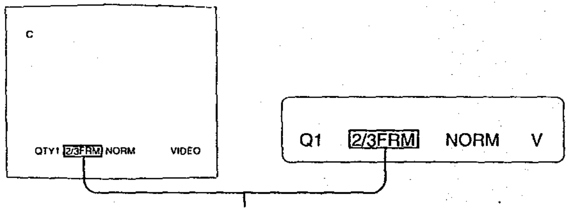
The UP-1800EPM has a single frame memory, enabling the unit to store one image in one memory page when FRM mode is selected, or two images in two memory pages when FLD mode is selected.
The UP-1850EPM has three frame memories, enabling the unit to store three images in three memory pages in frame mode and six images in six memory pages in field mode.
The memory used to store one screen image is called a memory page.

Selected memory mode	Number of usable memory pages		Usable memory pages	
	UP-1800EPM	UP-1850EPM	UP-1800EPM	UP-1850EPM
Frame mode (FRM)	1	3	1/1FRM	1/3FRM, 2/3FRM or 3/3FRM
Field mode (FLD)	2	6	1/2FLD 2/2FLD	1/6FLD, 2/6FLD, 3/6FLD, 4/6FLD, 5/6FLD or 6/6FLD

Selecting a memory page

To select a memory page, press the MEMORY PAGE button.





```
C

QTY1 [2/3FRM] NORM        VIDEO
```

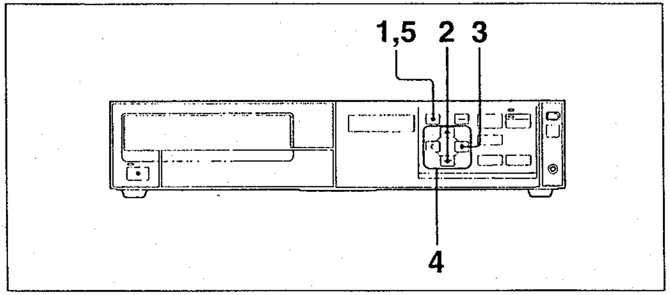
```
Q1   [2/3FRM]   NORM   V
```

Press the MEMORY PAGE button as many times as necessary until the desired memory page appears.

Selecting the Memory Mode

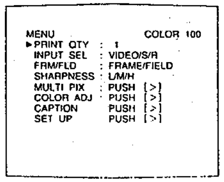
Decide the method for storing images in memory. Once you have selected memory mode, this setting remains as is until reset, even if you turn the power off.

When you use the remote control unit to control the printer
You can access the MULTI PICTURE sub menu by pressing the MULTI PICTURE button. Thus, press the MULTI PICTURE button to display the MULTI PICTURE sub menu. Then, follow the procedure below, starting from step 4.



1 Press the MENU button.
The following screen appears.

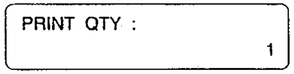
Video monitor screen



```
MENU                    COLOR 100
►PRINT QTY   :  1
 INPUT SEL   : VIDEO/S/R
 FRM/FLD     : FRAME/FIELD
 SHARPNESS   : L/M/H
 MULTI PIX   : PUSH [>]
 COLOR ADJ   : PUSH [>]
 CAPTION       PUSH [>]
 SET UP        PUSH [>]
```

Main Menu screen

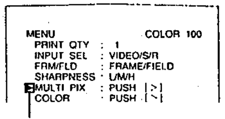
Printer window display



```
PRINT QTY :
                     1
```

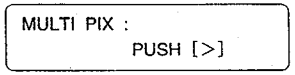
Part of the main menu

2 Select MULTI PIX by pressing the ∧ or ∨ button.



```
MENU                    COLOR 100
 PRINT QTY   :  1
 INPUT SEL   : VIDEO/S/R
 FRM/FLD     : FRAME/FIELD
 SHARPNESS   : L/M/H
■MULTI PIX   : PUSH [>]
 COLOR       : PUSH [>]
```

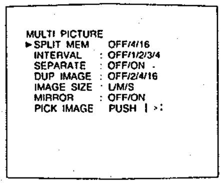
Move the cursor to MULTI PIX by pressing the ∧ or ∨ button.



```
MULTI PIX :
          PUSH [>]
```

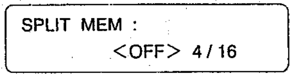
Press the ∧ or ∨ buttons until MULTI PIX appears.

3 Press the > button.
The following screen appears.



```
MULTI PICTURE
►SPLIT MEM     OFF/4/16
 INTERVAL    : OFF/1/2/3/4
 SEPARATE    : OFF/ON
 DUP IMAGE   : OFF/2/4/16
 IMAGE SIZE  : L/M/S
 MIRROR      : OFF/ON
 PICK IMAGE    PUSH [>]
```

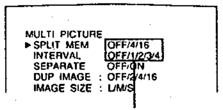
MULTI PICTURE sub menu



```
SPLIT MEM :
        <OFF> 4 / 16
```

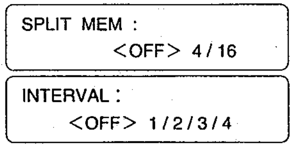
Part of the MULTI PICTURE sub menu

4 Set the memory mode.
① Select the item to be set by pressing the ∧ or ∨ button.
② Select the method for storing images by pressing the < or > button.



```
MULTI PICTURE
►SPLIT MEM     OFF/4/16
 INTERVAL      OFF/1/2/3/4
 SEPARATE      OFF/ON
 DUP IMAGE   : OFF/2/4/16
 IMAGE SIZE  : L/M/S
```

Switch the desired mode to green by pressing the < or > button.



```
SPLIT MEM :
        <OFF> 4 / 16

INTERVAL :
     <OFF> 1 / 2 / 3 / 4
```

Position < > over the desired mode by pressing the < or > button.

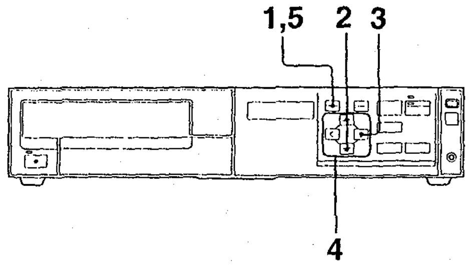
When you select	Item for memory mode	Settings	Contents of setting
To set the number of images to be stored in one memory page.	SPLIT MEM	OFF	Storing a full-size image
		4	Storing four reduced images
		16	Storing 16 reduced images
To set whether the printer automatically stores images into memory page at preset intervals.	INTERVAL	OFF	Storing only the image currently displayed on the screen by pressing the MEMORY IN button.
		1/2/3/4	Storing images sequentially to all memory pages at preset intervals. (1: about 1/60 seconds, 2: about 1/15 seconds, 3: about 1/4 seconds and 4: about 1/2 seconds)

5 Press the MENU button.
The regular screen appears.

Continue to next page →

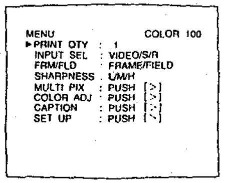
Selecting the Print Mode

You can make variations of printouts from the images stored in memory pages by changing the print mode. (see "Types of printouts that the printer can produce" page 20)
Once you have selected the print mode, this setting remains as is until you reset, even if you turn the power off.



1 Press the MENU button.
The following screen appears.

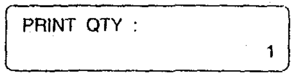
Video monitor screen



```
MENU                    COLOR 100
▶PRINT QTY   :  1
 INPUT SEL   : VIDEO/S/R
 FRM/FLD     : FRAME/FIELD
 SHARPNESS   . L/M/H
 MULTI PIX   : PUSH [>]
 COLOR ADJ   : PUSH [>]
 CAPTION     : PUSH [>]
 SET UP      : PUSH [>]
```

Main Menu screen

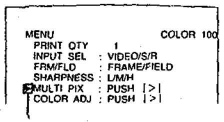
Printer window display



```
PRINT QTY :
                1
```

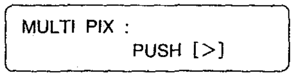
Part of the main menu

2 Select MULTI PIX by pressing the ∧ or ∨ button.



```
MENU                    COLOR 100
 PRINT QTY      1
 INPUT SEL   : VIDEO/S/R
 FRM/FLD     : FRAME/FIELD
 SHARPNESS   : L/M/H
▶MULTI PIX   : PUSH [>]
 COLOR ADJ   : PUSH [>]
```

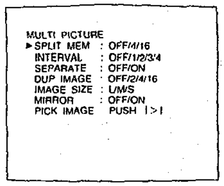
Move the cursor to MULTI PIX by pressing the ∧ or ∨ button.



```
MULTI PIX :
          PUSH [>]
```

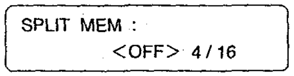
Press the ∨ or ∧ buttons until MULTI PIX appears.

3 Press the > button.
The following screen appears.



```
MULTI PICTURE
▶SPLIT MEM   : OFF/4/16
 INTERVAL    : OFF/1/2/3/4
 SEPARATE    : OFF/ON
 DUP IMAGE   : OFF/2/4/16
 IMAGE SIZE  : L/M/S
 MIRROR      : OFF/ON
 PICK IMAGE    PUSH [>]
```

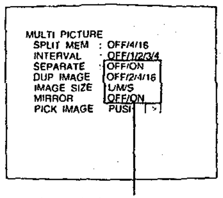
MULTI PICTURE sub menu



```
SPLIT MEM :
        <OFF> 4 / 16
```

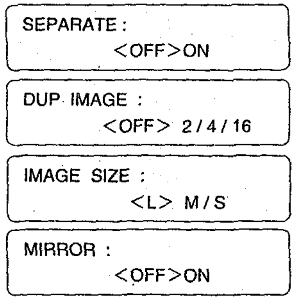
Part of the MULTI PICTURE sub menu

4 Set the print mode.
① Select the item to be set by pressing the ∧ or ∨ button.
② Select the method for making a printout by pressing the < or > button.



```
MULTI PICTURE
 SPLIT MEM   : OFF/4/16
 INTERVAL    : OFF/1/2/3/4
 SEPARATE    : OFF/ON
 DUP IMAGE    OFF/2/4/16
 IMAGE SIZE   L/M/S
 MIRROR       OFF/ON
 PICK IMAGE   PUSH [>]
```

Switch the desired mode to green by pressing the < or > button.



```
SEPARATE :
        <OFF>ON

DUP IMAGE :
        <OFF> 2 / 4 / 16

IMAGE SIZE :
        <L> M / S

MIRROR :
        <OFF>ON
```

Position < > over the desired mode by pressing the < or > button.

Continue to next page →

When you select	Item for print mode	Settings	Content of settings
To decide whether the images are printed with white borders	SEPARATE	OFF	without white borders [a]
		ON	with white borders [b]
To decide how many times identical images are printed in a single printout.	DUP IMAGE[a]	OFF	Printing a memory image one time
		2	Printing a memory image twice
		4	Printing a memory image four times
		16	Printing a memory image 16 times.
To set the size of the image in a single printout.	IMAGE SIZE[a]	L	Regular size
		M	About 70% of the L size
		S	About 50% of the L size
To rotate the image around its vertical axis (to make a mirror image printout)	MIRROR	OFF	Normal image
		ON	Mirror image
To make a printout consisting of multiple images, each from a same memory page or multiple memory pages.	PICK IMAGE	This item is effective only when the PICK sub menu is displayed.	

a) When SEPARATE is set to OFF (without white borders), the following items can be set.

DUP IMAGE	IMAGE SIZE		
	L	M	S
OFF	O	O	X
2	O	O	X
4	O	O	O
16	O	X	X

O: Size that can be set
X: Size that cannot be set

b) White borders can be added only for the following settings.
SPLIT MEM: Settings other than OFF
DUP IMAGE: OFF
IMAGE SIZE: L

5 Press the MENU button.
The regular screen appears.

To return to the main menu from the sub menu screen

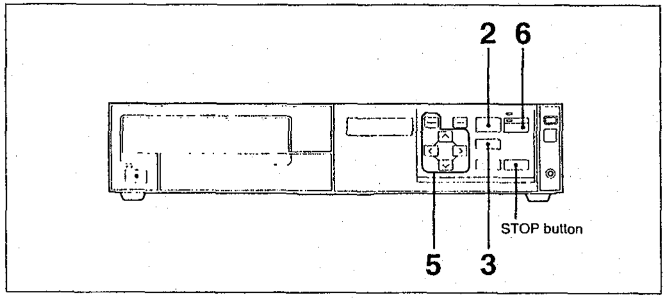
Press the EXEC button except when the SAVE item is selected on the COLOR ADJUST sub menu and when the cursor is position in the character entry area on the CAPTION sub menu.

Making Printouts of Multiple Reduced Images

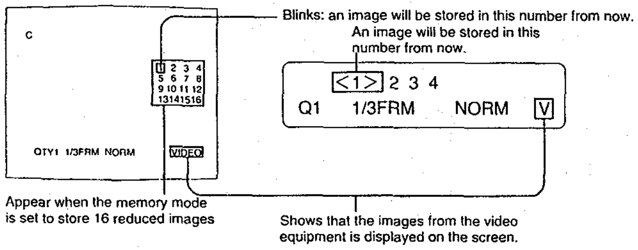
This subsection explains how to make printouts of multiple reduced images taking as an example, making a printout of 16 reduced images. (see "Selecting the Print Mode" page 28)

Before making printouts of 16 reduced images

- Set the memory mode to store 16 reduced images into memory. (see page 27)
- Select the appropriate memory page. (see page 25)


2
6
STOP button
5
3

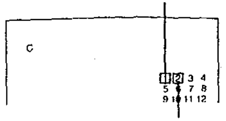
1 Start the video source.
(This operation is done using the controls of the video equipment acting as the source.)


C
1 2 3 4
5 6 7 8
9 10 11 12
13 14 15 16
QTY1 1/3FRM NORM
VIDEO
Blinks: an image will be stored in this number from now.
An image will be stored in this number from now.
<1> 2 3 4
Q1 1/3FRM NORM V
Appear when the memory mode is set to store 16 reduced images
Shows that the images from the video equipment is displayed on the screen.

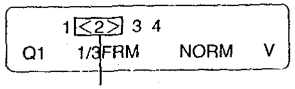
Continue to next page →

2 Press the MEMORY IN button at the instant when the image you want to print appears on the screen.
The image is stored to the position for which the corresponding number blinks on the monitor display, and over which the corresponding number < > is positioned in the printer window display.
The cursor moves to the next number.

When an image has been stored into this position, the number lights in green.



The cursor moves to the next number, then blinks



< > moves to the next number.

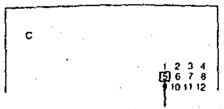
3 Press the SOURCE/MEMORY button.
The image from the video equipment appears on the monitor display.

4 Repeat steps 2 and 3 until you have stored 16 images.

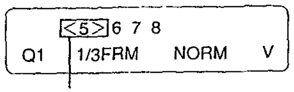
To change a stored image

Example: When you want to change the image stored to the 5th position.

① Select 5 by pressing the ∧, ∨, < or > button.



Move the white blinking cursor to 5 by pressing the ∧, ∨, < or > button.



Position < > over 5 by pressing the ∧, ∨, < or > button

② Press the SOURCE/MEMORY button.
The image from the video source appears.

③ Press the MEMORY IN button at the instant when the image you want to print appears.
The previously stored image is replaced with the newly selected image.

To skip a previously stored image

When an image has already been stored, the previously stored image can be replaced by pressing the MEMORY IN button.
Skip the number corresponding to the image to be skipped by pressing the ∧, ∨, < or > button.

5 Set the print mode. (see "Selecting the Print Mode" page 28)

6 Press the PRINT button.
The 16 reduced images are printed on one sheet of paper.

To stop printing midway

Press the STOP button. The printer stops printing and ejects paper to the paper cover.

To automatically store images into memory

Images can be automatically stored into all memory pages at preset intervals by using the INTERVAL item of the MULTI PICTURE sub menu, which is used to set the memory mode. (see "Selecting the Memory Mode" page 26)
While images are automatically being stored to all memory pages, "PLEASE WAIT" appears on the screen.

Making printouts with an insert

You can make printouts with an insert by using the four- or 16- reduced image memory mode.
Example: To make a printout with one of four reduced images inserted

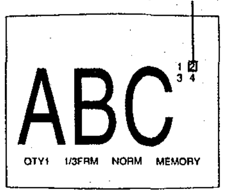
1 Display the full-size image stored in memory. (Follow steps 1 to 3 of "Making Full-Size Printouts" on page 14.)

2 Set the memory mode to store four reduced images. (see "Selecting the Memory Mode" page 26)

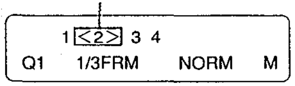
Continue to next page →

3 Move the white blinking cursor to the position where a reduced image is to be inserted, by pressing the ∧, ∨, < or > button.
Example: To insert the image to 2

Move the white blinking cursor to 2



Position < > over 2



4 Press the SOURCE/MEMORY button to display the image from the video source, if necessary.

5 Press the MEMORY IN button at the instant when the image you want to print appears.
The image is stored to position 2.

6 Press the PRINT button.
An image with the insert is printed.

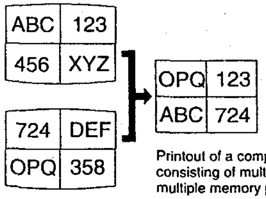
Note

If you insert a reduced image into an image stored in a different memory page, the printer can not make a printout of the image with an insert.

Making Printouts of Multiple Images in Multiple Memory Pages

You can make a single printout of multiple images stored in multiple memory pages. The number of images of a singe printout depends on the memory mode setting (the setting of SPLIT MEM from the MULTI PICTURE sub menu). In this manual, the type of printout described above is referred to as a composed image.

Type of memory images	Number of images in one composed image printout
Full-size image	2
Four reduced images	4
16 reduced images	16



Printout of a composed image consisting of multiple images in multiple memory pages

When using the UP-1800EPM, which has only a single frame memory, select field mode to make a printout of multiple images in multiple memory pages.

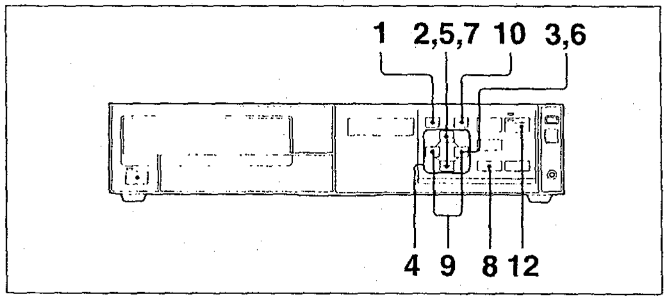
You can also exchange the position of multiple reduced images in the same memory page.

Before making printouts of images in multiple memory pages (composed image)

- Store images of the same type to each memory page.
- Display the images stored in memory on the screen.

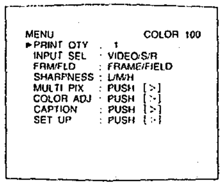
Note

Store the images of the same type to each memory page (one full-size image, four reduced images or 16 reduced images). Otherwise, the printout is likely to be unsatisfactory. For example, there may be whitish areas or different images may be overlapped.



1 Press the MENU button.
The following screen appears.

Video monitor screen



```
MENU                 COLOR 100
►PRINT QTY  .  1
 INPUT SEL  ·  VIDEO/S/R
 FRM/FLD    :  FRAME/FIELD
 SHARPNESS  :  L/M/H
 MULTI PIX  :  PUSH [>]
 COLOR ADJ  ·  PUSH [>]
 CAPTION    :  PUSH [>]
 SET UP     :  PUSH [>]
```

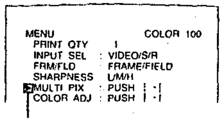
Main Menu screen

Printer window display

```
PRINT QTY :
                 1
```

Part of the main menu

2 Select MULTI PIX by pressing the ∧ or ∨ button.



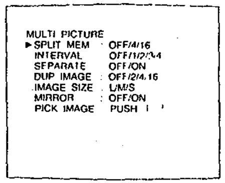
```
MENU                 COLOR 100
 PRINT QTY     1
 INPUT SEL  :  VIDEO/S/R
 FRM/FLD       FRAME/FIELD
 SHARPNESS     L/M/H
►MULTI PIX  :  PUSH [>]
 COLOR ADJ  :  PUSH [>]
```

Move the cursor to MULTI PIX by pressing the ∧ or ∨ button.

```
MULTI PIX :
          PUSH [>]
```

Press the ∧ or ∨ buttons until MULTI PIX appears.

3 Press the > button.
The following screen appears.



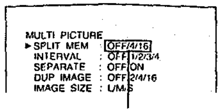
```
MULTI PICTURE
►SPLIT MEM  ·  OFF/4/16
 INTERVAL      OFF/1/2/3/4
 SEPARATE      OFF/ON
 DUP IMAGE  :  OFF/2/4/16
 IMAGE SIZE .  L/M/S
 MIRROR     :  OFF/ON
 PICK IMAGE    PUSH [ ]
```

MULTI PICTURE sub menu

```
SPLIT MEM :
        <OFF> 4 / 16
```

Part of the MULTI PICTURE sub menu

4 Select the type of the composed image.
① Select SPLIT MEM by pressing the ∧ or ∨button.
② Select the number of images in the composed image by pressing the < or > button.



```
MULTI PICTURE
►SPLIT MEM  :  OFF/4/16
 INTERVAL   :  OFF/1/2/3/4
 SEPARATE   :  OFF/ON
 DUP IMAGE  :  OFF/2/4/16
 IMAGE SIZE :  L/M/S
```

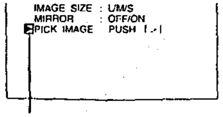
Switch the desired number to green.

```
SPLIT MEM :
        <OFF> 4 / 16
```

Position < > over the desired number.

Selection from SPLIT MEM	Number of images in one composed image printout
OFF	2
4	4
16	16

5 Select PICK IMAGE by pressing the ∧ or ∨ button.



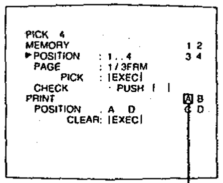
```
 IMAGE SIZE :  L/M/S
 MIRROR     :  OFF/ON
►PICK IMAGE    PUSH [>]
```

Move the cursor to PICK IMAGE by pressing the ∧ or ∨ button.

```
PICK IMAGE :
        PUSH [>]
```

Press the ∧ or ∨ button until PICK IMAGE appears.

6 Press the > button.
The following screen appears.



```
PICK  4
MEMORY                          1 2
►POSITION    :  1 . . 4         3 4
 PAGE        :  1 / 3FRM
      PICK   :  |EXEC|
 CHECK       ·  PUSH [ ]
PRINT                           A B
 POSITION    .  A   D           C D
       CLEAR:  |EXEC|
```

PICK sub menu

Blinks: shows that the image will be inserted into A.

```
POSITION        A . . D
                 <A> B
```

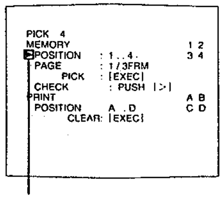
Part of the PICK sub menu

To store an image to a position other than A

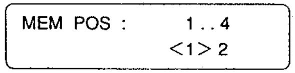
Images are stored automatically in order of A, B, C, D..... You can select where each image is to be stored.
① Select PRINT POSITION by pressing the ∧ or ∨ button.
② Select the desired position by pressing the < or > button.

Continue to next page →

7 Select MEMORY POSITION by pressing the ∧ or ∨ button.

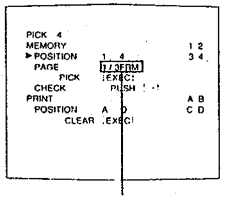

PICK 4
MEMORY
POSITION : 1 . . 4
PAGE : 1 / 3FRM
PICK : [EXEC]
CHECK : PUSH [>]
PRINT
POSITION A . D
CLEAR: [EXEC]
1 2
3 4
A B
C D

Move the cursor to POSITION by pressing the ∧ or ∨ button.

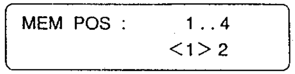

MEM POS : 1 . . 4
<1> 2

Press the ∧ or ∨ button until MEM POS appears.

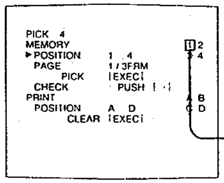
8 Select the memory page to which the desired image is stored, by pressing the MEMORY PAGE button.

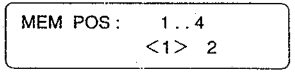

PICK 4
MEMORY
POSITION 1 . 4
PAGE 1 / 3FRM
PICK [EXEC]
CHECK PUSH [>]
PRINT
POSITION A D
CLEAR [EXEC]
1 2
3 4
A B
C D

The memory page in which the image displayed on the video monitor is stored.


MEM POS : 1 . . 4
<1> 2

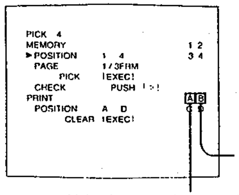
9 Select the image to be stored by pressing the < or > button.

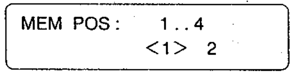

PICK 4
MEMORY
POSITION 1 . 4
PAGE 1 / 3FRM
PICK [EXEC]
CHECK PUSH [>]
PRINT
POSITION A D
CLEAR [EXEC]
1 2
3 4
A B
C D


MEM POS : 1 . . 4
<1> 2

The selected image (that to which the cursor is positioned) blinks. This image will be stored to the position that is blinking in the PRINT POSITION item of the PICK sub menu.

10 Press the EXEC button.
The image selected in step 9 is stored.


PICK 4
MEMORY
POSITION 1 . 4
PAGE 1 / 3FRM
PICK [EXEC]
CHECK PUSH [>]
PRINT
POSITION A D
CLEAR [EXEC]
1 2
3 4
A B
C D


MEM POS : 1 . . 4
<1> 2

Blinks (in the next step, the image to be stored here will be decided).

Lights in green (the image is stored).

11 Repeat steps 8, 9 and 10 until you have stored all the desired images.

To leave a position blank

A position can be left blank without inserting an image.

① Select PRINT POSITION by pressing the ∧ or ∨ button.
② Select the position that you want to leave blank, by pressing the < or > button.
③ Press the EXEC button.
Any image is not printed at that position.

To change a stored image

① Select PRINT POSITION by pressing the ∧ or ∨ button.
② Select the position of the image to be changed by pressing the < or > button.
③ Select MEMORY POSITION by pressing the ∧ or ∨ button.
④ Store a new image.
The previous image is replaced with the new one.

To check an image that is hidden below a screen message

You can check an image by temporarily deleting screen display.

① Select CHECK by pressing the ∧ or ∨ button.
② Press the > button.
For as long as you keep the > button held down, the display does not appear on the screen.

12 Press the PRINT button.
The composed images are printed on a single paper.

Note

To make a printout of a composed image, press the PRINT button on the PICK sub menu. The composed image can not be printed on the regular screen or main menu screen.

1-7. MAKING PRINTOUTS WITH A CAPTION

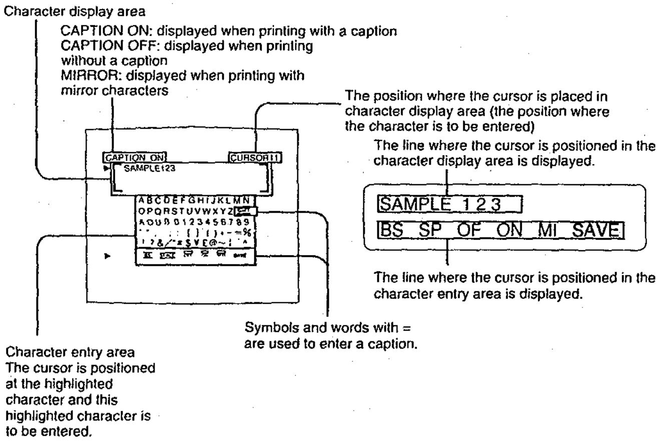
A caption, such as data or comments, can be added to a printout, using small characters below the image.
You can input up to 128 characters in NARROW size mode or NORMAL size mode, and up to 64 characters in WIDE size mode.

Note

When the printout is printed in field mode, characters may not be printed clearly.

About the CAPTION sub menu

A caption is entered from the CAPTION sub menu. A brief explanation of each item on the CAPTION sub menu, is given below before entering a caption.



Character display area

CAPTION ON: displayed when printing with a caption
CAPTION OFF: displayed when printing without a caption
MIRROR: displayed when printing with mirror characters

The position where the cursor is placed in character display area (the position where the character is to be entered)

The line where the cursor is positioned in the character display area is displayed.

The line where the cursor is positioned in the character entry area is displayed.

Symbols and words with = are used to enter a caption.

Character entry area
The cursor is positioned at the highlighted character and this highlighted character is to be entered.

Note

Lower-case ä, ö and ü are displayed instead of capital Ä, Ö and Ü even in the capital-letter setting and ≈ is displayed instead of ~ on the printer window display. However, in actual printouts, those letters and the symbol are printed correctly according to the settings.

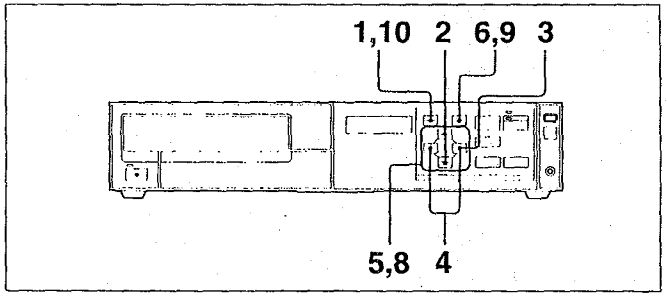
Symbols and words with = used to enter a caption

Monitor display	Printer window display	Function
SPACE	SP	One space
BS	BS	One backspace
OFF	OF	Selecting to print without a caption
ON	ON	Selecting to print with a caption
MIR	MI	Selecting to print with a mirror caption
SHIFT[a]	SF	Selecting either capital letters or lower-case letters
SAVE	SAVE	Storing the entered caption

a) By highlighting SHIFT and pressing the EXEC button, capital letters are changed to lower-case letters, or lower-case letters are changed to capital letters.

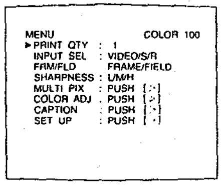
Entering a Caption

Enter a caption as follows. The setting remains valid until you enter a new setting - even if you turn the power off.



1 Press the MENU button.
The following screen appears.

Video monitor screen



```
MENU                    COLOR 100
▶PRINT QTY  :  1
 INPUT SEL  : VIDEO/S/R
 FRM/FLD      FRAME/FIELD
 SHARPNESS  : L/M/H
 MULTI PIX  : PUSH [ ·]
 COLOR ADJ  . PUSH [ ·]
 CAPTION    : PUSH [ ·]
 SET UP     : PUSH [ ·]
```

Main menu screen

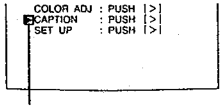
Printer window display

PRINT QTY :
1

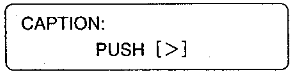
Part of the main menu

Continue to next page →

2 Select CAPTION by pressing the ∧ or ∨ button.

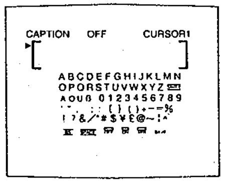

COLOR ADJ : PUSH [>]
CAPTION : PUSH [>]
SET UP : PUSH [>]

Move the cursor to CAPTION by pressing the ∧ or ∨ button.

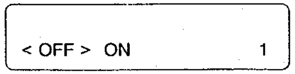

CAPTION:
PUSH [>]

Press the ∧ or ∨ buttons until CAPTION appears.

3 Press the > button.
The following screen appears.

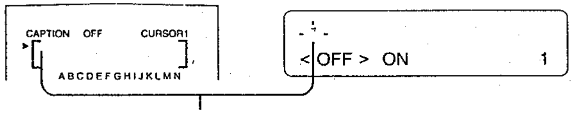

CAPTION OFF CURSOR1
[ ]
ABCDEFGHIJKLMN
OPQRSTUVWXYZ
AOUß 0123456789
( ) ( ) + − = %
! ? & / * $ ¥ £ @ ~ ! ^

CAPTION sub menu



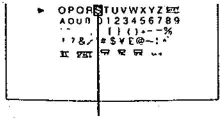
Part of the CAPTION sub menu

4 Select the position where you want to enter the character in the character display area by pressing the < or > button.

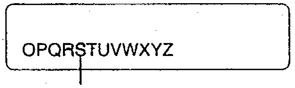

CAPTION OFF CURSOR1
[ ]
ABCDEFGHIJKLMN
< OFF > ON 1

The cursor ☐ is highlighted at the selected position on the monitor display.
The cursor ☐ blinks in black at the selected position on the printer window display.

5 Select the character you want to enter by pressing the ∧, ∨, < or > button.
Example: To select S

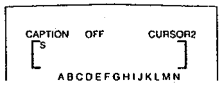

OPQRSTUVWXYZ
AOUß 0123456789
( ) ( ) + − = %
! ? & / * $ ¥ £ @ ~ ! ^

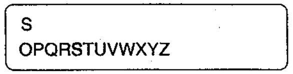
Highlight S.


OPQRSTUVWXYZ

Press the ∧ or ∨ button until this line appears, then press < or > buttons until S blinks.

6 Press the EXEC button.


CAPTION OFF CURSOR2
[S]
ABCDEFGHIJKLMN


S
OPQRSTUVWXYZ

The selected character appears at the position highlighted on the character display area, then the highlighted ▯ moves to the next position.

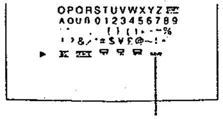
When you enter a wrong character
Select BS by pressing the ∧, ∨, < or > buttons, then press the EXEC button. The character to the left of highlighted character will be deleted.

7 Repeat steps 4, 5 and 6 to enter the remaining characters of the caption.

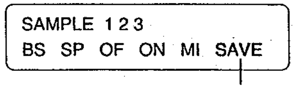
To make a space
① Move the highlighted ▯ to the position where you want to make a space.
② Select SPACE by pressing the ∧, ∨, < or > button.
③ Press the EXEC button.
The one space is made and the cursor moves to the next position.

To replace a previously entered character without changing the number of characters
You can replace a previously entered character with a new one.
① Move the cursor to the character which you want to replace by the operation in step 4.
② Enter the correct character over the wrong character by the operations in steps 5 and 6.
The previously entered character is replaced with the new one.

8 Select SAVE by pressing the ∧, ∨, < or > button.


OPQRSTUVWXYZ
AOUß 0123456789
( ) ( ) + − = %
! ? & / * $ ¥ £ @ ~ ! ^

Highlight SAVE.


SAMPLE 1 2 3
BS SP OF ON MI SAVE

Press the ∧ or ∨ button until this line appears, then press the < or > button until SAVE blinks.

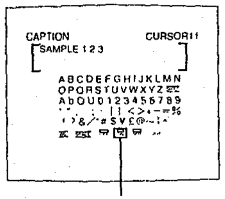
9 Press the EXEC button.
The message "PLEASE WAIT" appears while the entered characters are being stored. Once they have been stored, the message disappears and the CAPTION sub menu appears again.

10 Press the MENU button.
The regular screen appears.

Making printouts with a caption

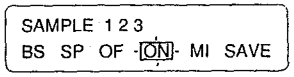
Display the CAPTION input screen. (see "Entering a Caption" page 41)

1 Select ON by pressing the ∧, ∨, < or > button.



```
CAPTION              CURSOR11
[SAMPLE 1 2 3                ]
     ABCDEFGHIJKLMN
     OPQRSTUVWXYZ
     AbOU0123456789
```

Highlight ON.



```
SAMPLE 1 2 3
BS  SP  OF -[ON]- MI  SAVE
```

2 Press the EXEC button.

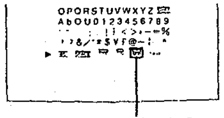
Making a printouts without a caption

Select OFF in the above step 1.

Making a printout with a mirror caption

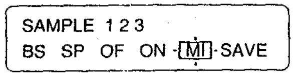
Display the CAPTION input screen. (see "Entering a Caption" on page 41)

1 Select MIR by pressing the ∧, ∨, < or > button.



```
OPQRSTUVWXYZ
AbOU0123456789
```

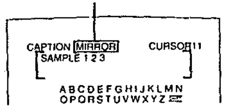
Highlight MIR.



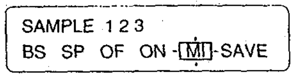
```
SAMPLE 1 2 3
BS  SP  OF  ON -[MI]-SAVE
```

2 Press the EXEC button.

MIRROR is displayed.



```
CAPTION [MIRROR]     CURSOR11
[SAMPLE 1 2 3                ]
     ABCDEFGHIJKLMN
     OPQRSTUVWXYZ
```



```
SAMPLE 1 2 3
BS  SP  OF  ON -[MI]-SAVE
```

Note

To select MIR on the CAPTION sub menu, the setting of MIRROR on the MULTI PICTURE sub menu should be set to MIRROR ON. Otherwise, if you select MIR on the CAPTION sub menu with setting to MIRROR OFF on theMULTI PICTURE sub menu, error tone sounds.

To return the print mode to the one with normal caption

① Select ON by pressing the ∧, ∨, < or > button.
② Press the EXEC button.

To return to the regular screen

Press the MENU button.

1-8. DELETING THE IMAGES STORED INTO MEMORY PAGES

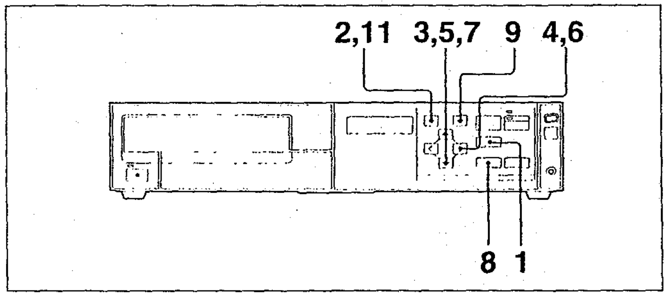
You can delete images stored to memory pages, either individually or all at once, from a menu.

Note

You cannot restore images once they have been deleted.

Simultaneously Deleting All Images in a Single Memory Page

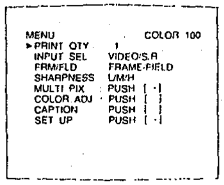
You can delete a full-size image or four or 16 reduced images from one memory page.



1 Press the SOURCE/MEMORY button when the image from the video equipment appears on the monitor display.

2 Press the MENU button.
The following screen appears.

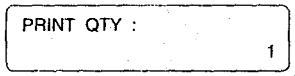
Video monitor screen



```
MENU                 COLOR 100
►PRINT QTY      1
 INPUT SEL     VIDEO/S.R
 FRM/FLD       FRAME-FIELD
 SHARPNESS     L/M/H
 MULTI PIX  :  PUSH [ ·]
 COLOR ADJ  ·  PUSH [  ]
 CAPTION       PUSH [  ]
 SET UP        PUSH [ ·]
```

Main menu screen

Printer window display

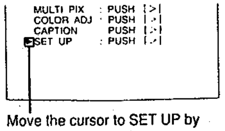


```
PRINT QTY :
                      1
```

Part of the main menu

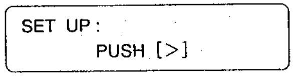
Continue to next page →

3 Select SET UP by pressing the ∧ or ∨ button.



```
 MULTI PIX   : PUSH [>]
 COLOR ADJ   : PUSH [>]
 CAPTION       PUSH [>]
▶SET UP      : PUSH [>]
```

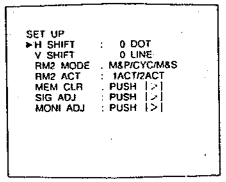
Move the cursor to SET UP by pressing the ∧ or ∨ button.



```
SET UP :
        PUSH [>]
```

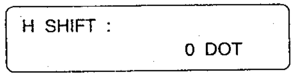
Press the ∧ or ∨ button until SET UP appears.

4 Press the > button.
The following screen appears.



```
SET UP
▶H SHIFT    :   0 DOT
 V SHIFT        0 LINE
 RM2 MODE   . M&P/CYC/M&S
 RM2 ACT    :  1ACT/2ACT
 MEM CLR    . PUSH [>]
 SIG ADJ    : PUSH [>]
 MONI ADJ   : PUSH [>]
```

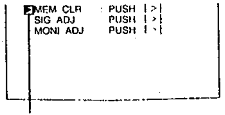
SET UP sub menu



```
H SHIFT :
              0 DOT
```

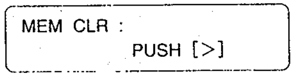
Part of the SET UP sub menu

5 Select MEM CLR by pressing the ∧ or ∨ button.



```
▶MEM CLR    : PUSH [>]
 SIG ADJ      PUSH [>]
 MONI ADJ     PUSH [>]
```

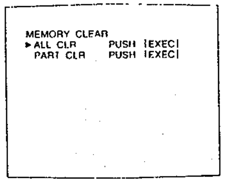
Move the cursor to MEM CLR by pressing the ∧ or ∨ button.



```
MEM CLR :
          PUSH [>]
```

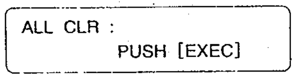
Press the ∧ or ∨ button until MEM CLR appears

6 Press the > button.
The following screen appears.



```
MEMORY CLEAR
▶ALL CLR      PUSH [EXEC]
 PART CLR     PUSH [EXEC]
```

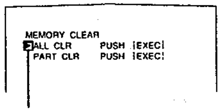
MEMORY CLEAR sub menu



```
ALL CLR :
          PUSH [EXEC]
```

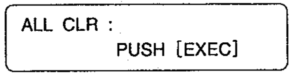
Part of MEMORY CLEAR sub menu

7 Select ALL CLR by pressing the ∧ or ∨ button.



```
MEMORY CLEAR
▶ALL CLR      PUSH [EXEC]
 PART CLR     PUSH [EXEC]
```

Move the cursor to ALL CLR by pressing the ∧ or ∨ button.



```
ALL CLR :
          PUSH [EXEC]
```

Press the ∧ or ∨ button until ALL CLR appears.

8 Select the memory page, in which the images to be deleted are stored, by pressing the MEMORY PAGE button.

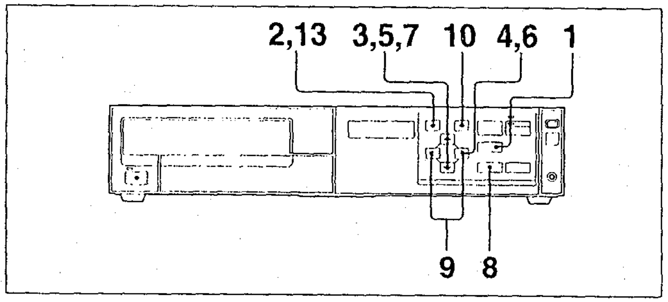
9 Press the EXEC button.
All images in the selected memory page are deleted.

10 Repeat steps 8 and 9 to delete the images in the remaining memory pages.

11 Press the MENU button.
The regular screen appears.

Deleting Part of Multiple Images in a Single Memory Page

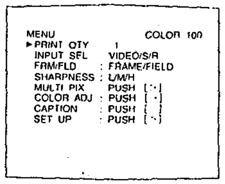
You can delete unnecessary images from a single memory page.



1 Press the SOURCE/MEMORY button when the source image from the video equipment appears on the monitor.
The memory image appears on the monitor.

2 Press the MENU button.
The following screen appears.

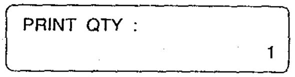
Video monitor screen



```
MENU                    COLOR 100
►PRINT QTY      1
 INPUT SEL      VIDEO/S/R
 FRM/FLD      : FRAME/FIELD
 SHARPNESS    : L/M/H
 MULTI PIX      PUSH [>]
 COLOR ADJ    : PUSH [>]
 CAPTION      : PUSH [>]
 SET UP       : PUSH [>]
```

Main Menu screen

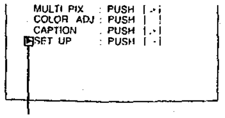
Printer window display



```
PRINT QTY :
                    1
```

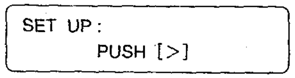
Part of the main menu

3 Select SET UP by pressing the ∧ or ∨ button.



```
 MULTI PIX    : PUSH [>]
 COLOR ADJ    : PUSH [>]
 CAPTION      : PUSH [>]
►SET UP       : PUSH [>]
```

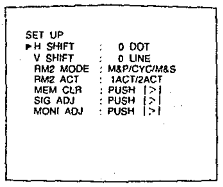
Move the cursor to SET UP by pressing the ∧ or ∨ button.



```
SET UP :
        PUSH [>]
```

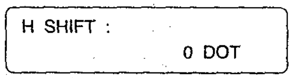
Press the ∧ or ∨ button until SET UP appears.

4 Press the > button.
The following screen appears.



```
SET UP
►H SHIFT     :   0 DOT
 V SHIFT     :   0 LINE
 RM2 MODE    : M&P/CYC/M&S
 RM2 ACT     :  1ACT/2ACT
 MEM CLR     : PUSH [>]
 SIG ADJ     : PUSH [>]
 MONI ADJ    : PUSH [>]
```

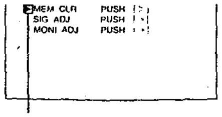
SET UP sub menu



```
H SHIFT :
               0 DOT
```

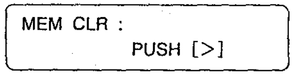
Part of the SET UP sub menu

5 Select MEM CLR by pressing the ∧ or ∨ button.



```
►MEM CLR       PUSH [>]
 SIG ADJ       PUSH [>]
 MONI ADJ      PUSH [>]
```

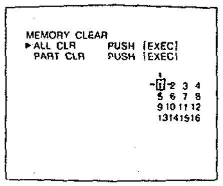
Move the cursor to MEM CLR by pressing the ∧ or ∨ button.



```
MEM CLR :
          PUSH [>]
```

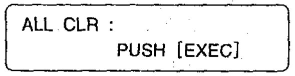
Press the ∧ or ∨ button until MEM CLR appears.

6 Press the > button.
The following screen appears.



```
MEMORY CLEAR
►ALL CLR       PUSH [EXEC]
 PART CLR      PUSH [EXEC]

                        [1] 2  3  4
                         5  6  7  8
                         9 10 11 12
                        13 14 15 16
```

MEMORY CLEAR sub menu

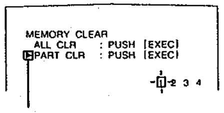


```
ALL CLR :
         PUSH [EXEC]
```

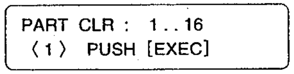
Part of MEMORY CLEAR sub menu

Continue to next page →

7 Select PART CLR by pressing the ∧ or ∨ button.


MEMORY CLEAR
ALL CLR : PUSH [EXEC]
▶PART CLR : PUSH [EXEC]
-1-2 3 4

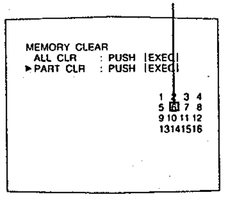
Move the cursor to PART CLR by pressing the ∧ or ∨ button.

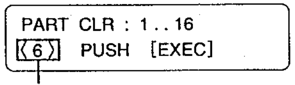

PART CLR : 1..16
(1) PUSH [EXEC]

Press the ∧ or ∨ button until PART CLR appears.

8 Select the memory page containing the images to be deleted stored by pressing the MEMORY PAGE button.

9 Select the image to be deleted by pressing the < or > button.
Example: Deleting the sixth image of 16 reduced images


Make 6 blink.
MEMORY CLEAR
ALL CLR : PUSH [EXEC]
▶PART CLR : PUSH [EXEC]
1 2 3 4
5 6 7 8
9 10 11 12
13 14 15 16


PART CLR : 1..16
(6) PUSH [EXEC]

Press the < or > button until 6 appears.

10 Press the EXEC button.
The image selected in step 9 is deleted.

11 Repeat steps 9 and 10 to delete the remaining images.

12 To delete images in other memory pages, repeat steps 8, 9, 10 and 11.

13 Press the MENU button.
The regular screen appears.

1-9. CONNECTIONS

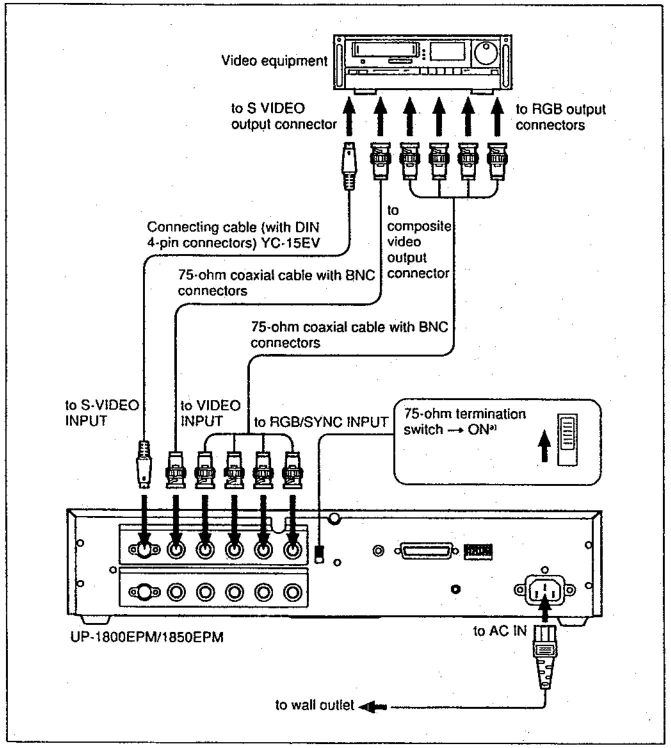
To enable printing, video equipment to act as an input signal source, and a video monitor to enable you to view images or menus, must be connected. The following diagrams illustrate how to make the input, output and remote control connections. Use as a guide when connecting the necessary signals to and from the equipment to be used for printing.

Notes

When connecting:
- Turn off the power of each device before attempting to make any connections.
- Connect the AC power cord last.

Making Connections for Storing Video Images

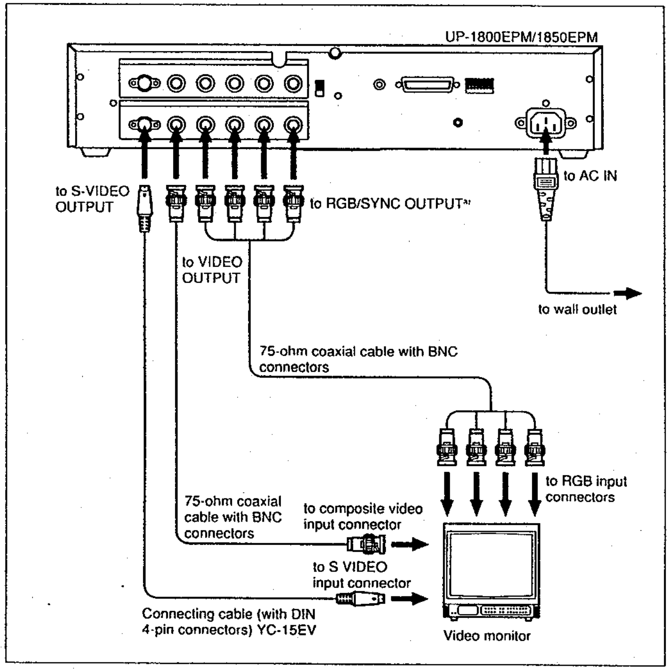
Connect the video equipment for storing the video images to be printed.
Connect the necessary video equipment which will be used in actual printing, using the following diagram as a guide.
Before connecting the video equipment, see "Important safeguards/notices for use in the medical environment" on page 2.


Video equipment
to S VIDEO output connector
to RGB output connectors
Connecting cable (with DIN 4-pin connectors) YC-15EV
to composite video output connector
75-ohm coaxial cable with BNC connectors
75-ohm coaxial cable with BNC connectors
to S-VIDEO INPUT
to VIDEO INPUT
to RGB/SYNC INPUT
75-ohm termination switch → ON a)
UP-1800EPM/1850EPM
to AC IN
to wall outlet

a) Normally, set this switch to ON. Set it to OFF if the level of the input signal drops if you connect additional video equipment.

Making Connections for Viewing Images to be Printed on the Video Monitor

Connect a video monitor to view stored images and to check those to be printed. Connect the necessary video monitor which will be used in actual printing, using the following diagram as a guide.
Before connecting the video monitor, see "Important safeguards/notices for use in the medical environment" on page 2.


UP-1800EPM/1850EPM
to S-VIDEO OUTPUT
to RGB/SYNC OUTPUTa)
to AC IN
to VIDEO OUTPUT
to wall outlet
75-ohm coaxial cable with BNC connectors
to RGB input connectors
75-ohm coaxial cable with BNC connectors
to composite video input connector
to S VIDEO input connector
Connecting cable (with DIN 4-pin connectors) YC-15EV
Video monitor

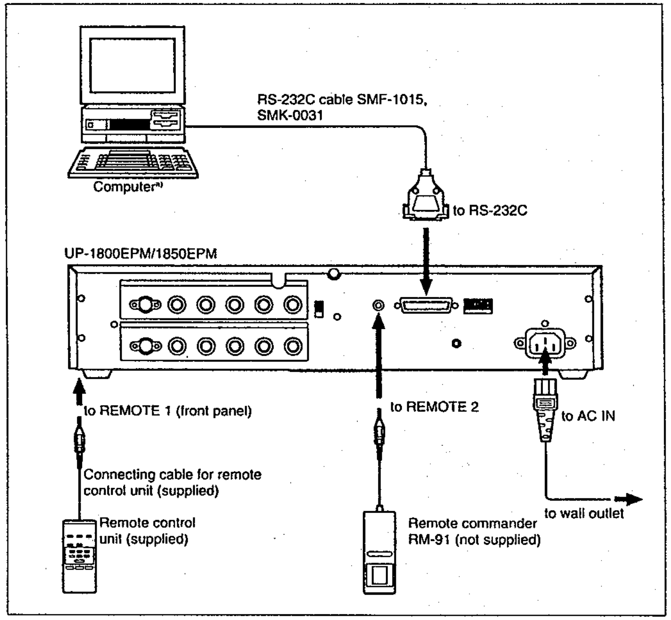
a) When you connect the video monitor to RGB/SYNC OUTPUT, set SYNC ON G of the MONITOR ADJUST sub menu to ON.

To set SYNC ON G to ON

1. To access the MONITOR ADJUST sub menu, perform steps 1 to 5 of "Matching the Video Monitor Color to the Printer Color" on page 69.
2. Select SYNC ON G by pressing the ∧ or ∨ button.
3. Set SYNC ON G to ON by pressing the < or > button.
4. Press the MENU button.
   The regular screen appears.

Making Connections to Enable Remote Control

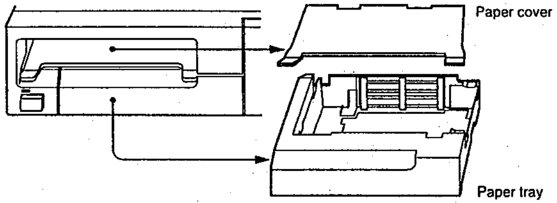
The printer can be controlled remotely by connecting the remote control unit (supplied), the RM-91 remote commander (see "Preparing the Remote Control Units" page 55), or a personal computer.
Before connecting the computer, see "Important safeguards/notices for use in the medical environment" on page 2.


RS-232C cable SMF-1015, SMK-0031
Computera)
to RS-232C
UP-1800EPM/1850EPM
to REMOTE 1 (front panel)
to REMOTE 2
to AC IN
Connecting cable for remote control unit (supplied)
Remote control unit (supplied)
Remote commander RM-91 (not supplied)
to wall outlet

a) When connecting a personal computer, select the appropriate baud rate by setting the DIP switches SW3 and SW4. (see "Setting the DIP switch" page 85)

Assembly

Mount the supplied paper tray and paper cover.


Paper cover
Paper tray

1-10. PREPARING THE REMOTE CONTROL UNITS

You can control the printer remotely by using the remote control unit (supplied) or the remote commander (not supplied).

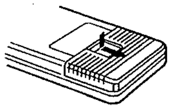
Using the Supplied Remote Control Unit

The remote control unit can be used either as a wireless type or wired type. The buttons on the remote control unit duplicate those on the front panel of the printer, except for the PRINT QTY button, COLOR ADJUST button and MULTI PICTURE button. (see "Remote Control Unit" page 101)

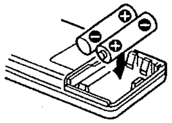
Inserting batteries

Install the batteries in the remote control unit before using it as a wireless unit.

1 Remove the battery compartment cover.



2 Insert the two supplied SUM-3 1.5 V batteries.
Note the polarity. Be careful to insert the batteries correctly.



3 Replace the cover.

Battery life

The battery life depends on how much you use the remote control unit. On average, batteries last for about 6 months. Install fresh batteries as soon as you notice the unit's range becoming shorter.

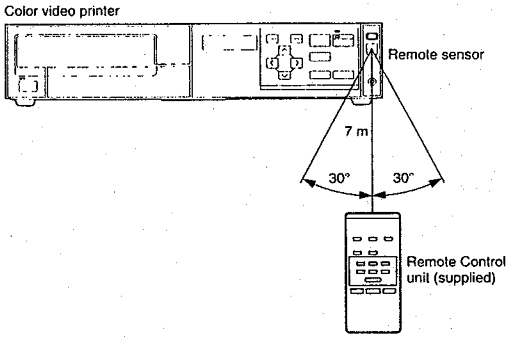
Notes

When using the batteries:

- Remove the batteries from the remote control unit if you do not intend to use it for an extended period of time. The batteries may leak if you leave them in the remote control unit.
- Should the batteries leak, clean the battery case thoroughly with a soft cloth and install fresh batteries.
- Be careful to insert the batteries correctly. Note the polarity, as indicated inside the battery compartment.
- Replace exhausted batteries with fresh ones. Never mix a fresh battery with a used battery or with a different kind of battery.

Using the supplied remote control unit as a wireless unit

When using the remote control unit as a wireless unit, aim the head of the remote control unit of the remote sensor on the printer. With fresh batteries, the range of the remote control unit is about 7 meters.



Using the Remote Commander

The RM-91 remote commander (not supplied) allows you to make prints remotely.

Operation

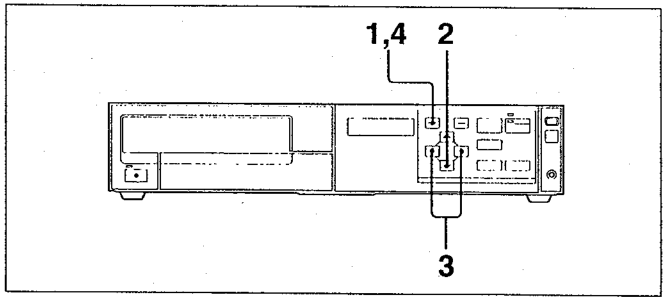
At the instant the image you want to print is displayed on the monitor, press the switch of the remote commander. The subsequent operation of the printer will depend on the remote operation setting with the corresponding menu. (see "Selecting the Operation Mode for Automatic Printing Capabilities" page 78) The printer operation, also, can be controlled remotely by sending a pulse signal to the REMOTE 2 connector. (see "Specifications" page 92)

1-11. ADJUSTING THE PRINTOUT QUALITY

You can adjust the printout quality, including its sharpness and color (intensity and contrast) and store these settings by using the menu. The setting remains as is until reset - even if you turn off the power.

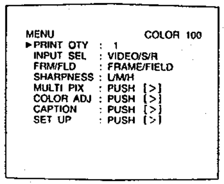
Adjusting the Sharpness

You can set the printout sharpness to one of three levels: L (Low), M (Medium) or H (High). A printout will appear softer or sharper depending on the definition of the subject outline. The image on the monitor is not affected by changing the sharpness setting. This adjustment affect only the quality of the printout. The setting remains as is until reset - even if you turn off the power.



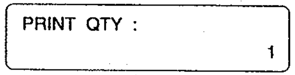
1 Press the MENU button.
The following screen appears.

Video monitor screen



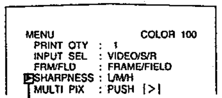
```
MENU                    COLOR 100
▶PRINT QTY  :  1
 INPUT SEL  : VIDEO/S/R
 FRM/FLD    : FRAME/FIELD
 SHARPNESS  : L/M/H
 MULTI PIX  : PUSH [>]
 COLOR ADJ  : PUSH [>]
 CAPTION    : PUSH [>]
 SET UP     : PUSH [>]
```

Printer window display



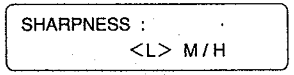
```
PRINT QTY :
                    1
```

2 Select SHARPNESS by pressing the ∧ or ∨ button.



```
MENU                    COLOR 100
 PRINT QTY  :  1
 INPUT SEL  : VIDEO/S/R
 FRM/FLD    : FRAME/FIELD
▶SHARPNESS  : L/M/H
 MULTI PIX  : PUSH [>]
```

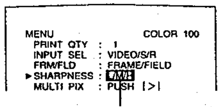
Move the cursor to SHARPNESS by pressing the ∧ or ∨ button.



```
SHARPNESS :
          <L> M / H
```

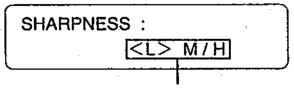
Display SHARPNESS by pressing the ∧ or ∨ button.

3 Select desired sharpness by pressing the < or > button.



```
MENU                    COLOR 100
 PRINT QTY  :  1
 INPUT SEL  : VIDEO/S/R
 FRM/FLD    : FRAME/FIELD
▶SHARPNESS  : L/M/H
 MULTI PIX  : PUSH [>]
```

Switch the desired sharpness to green by pressing the < or > button.



```
SHARPNESS :
          <L> M / H
```

Position < > over the desired sharpness by pressing the < or > button.

Desired sharpness	Content of settings
L (Low)	Soft outline
M (Medium)	Normal outline
H (High)	sharp outline

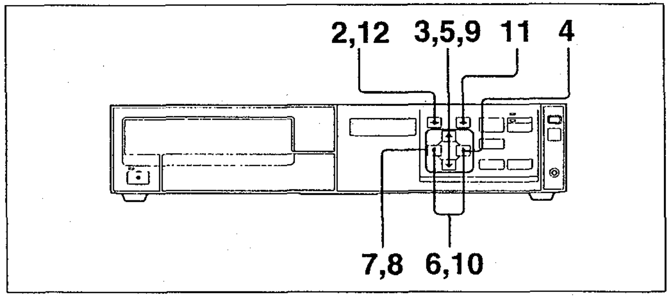
4 Press the MENU button.
The regular screen appears.

Adjusting the Printout Color

This subsection explains how to adjust the printout color.
You can adjust the color intensity (RED/GREEN/BLUE) and contrast (DARK/LIGHT). The new setting remains as is until reset - even if you turn off the power.

You can store up to three settings. These settings are managed according to a LOAD number. The color intensity and picture contrast of a printout are determined by recalling one of the three settings according to their LOAD numbers. The printer retains these settings even if you turn off the power.
This is useful when you are using more than one video equipment, each of a different quality, and when you want to print images having different color qualities and picture contrasts.
Also, you can make a printout using temporarily set values, without erasing the stored adjustment values.
Perform the adjustments while viewing the images stored in memory.
All values are factory-set to 0 for LOAD numbers 1, 2 and 3.

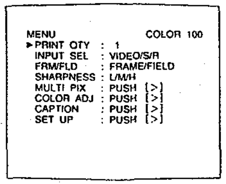
When you control the printer using the remote control unit (supplied)
You can directly access the COLOR ADJUST sub menu from the regular screen by pressing the COLOR ADJUST button. Therefore, press the COLOR ADJUST button first. Then, perform the operation from step 5 of the following procedure.



1 Display the image stored in monitor for adjustment.

2 Press the MENU button.
The following screen appears.

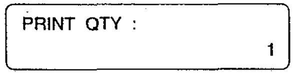
Video monitor screen



```
MENU                    COLOR 100
▶PRINT QTY  :  1
 INPUT SEL  : VIDEO/S/R
 FRM/FLD    : FRAME/FIELD
 SHARPNESS  : L/M/H
 MULTI PIX  : PUSH [>]
 COLOR ADJ  : PUSH [>]
 CAPTION    : PUSH [>]
 SET UP     : PUSH [>]
```

Main Menu screen

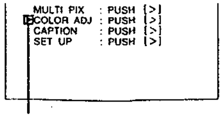
Printer window display



```
PRINT QTY :
                    1
```

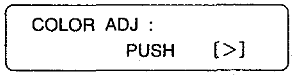
Part of the main menu

3 Select COLOR ADJ by pressing the ∧ or ∨ button.



```
 MULTI PIX  : PUSH [>]
▶COLOR ADJ  : PUSH [>]
 CAPTION    : PUSH [>]
 SET UP     : PUSH [>]
```

Move the cursor to COLOR ADJ by pressing the ∧ or ∨ button.

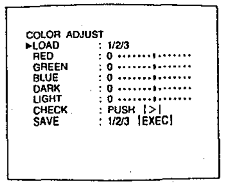


```
COLOR ADJ :
          PUSH    [>]
```

Press the ∧ or ∨ buttons until COLOR ADJ appears.

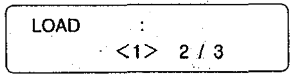
Continue to next page →

4 Press the > button.
The following screen appears.



```
COLOR ADJUST
▶LOAD       : 1/2/3
 RED        : 0 .......|.......
 GREEN      : 0 .......|.......
 BLUE       : 0 .......|.......
 DARK       : 0 .......|.......
 LIGHT      : 0 .......|.......
 CHECK      : PUSH [>]
 SAVE       : 1/2/3 [EXEC]
```

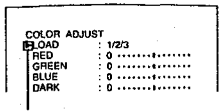
COLOR ADJUST sub menu



```
LOAD        :
       <1>   2 / 3
```

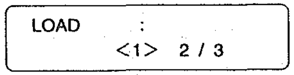
Part of the COLOR ADJUST sub menu

5 Select LOAD by pressing the ∧ or ∨ button.



```
COLOR ADJUST
▶LOAD       : 1/2/3
 RED        : 0 .......|.......
 GREEN      : 0 .......|.......
 BLUE       : 0 .......|.......
 DARK       : 0 .......|.......
```

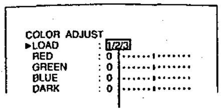
Move the cursor to LOAD by pressing the ∧ or ∨ button.



```
LOAD        :
       <1>   2 / 3
```

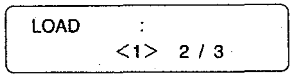
Press the ∧ or ∨ button until LOAD appears.

6 Select the LOAD number of the value to be adjusted or to be modified by pressing the < or > button.



```
COLOR ADJUST
▶LOAD       : 1/2/3
 RED        : 0 .......|.......
 GREEN      : 0 .......|.......
 BLUE       : 0 .......|.......
 DARK       : 0 .......|.......
```

Switch the desired LOAD number to green by pressing the < or > button.



```
LOAD        :
       <1>   2 / 3
```

Position < > over the desired LOAD number by pressing the < or > button.

When modifying, you can preserve the original settings. (see "To preserve the original set value" page 62)

7 Adjust the printout color.

① Select the item to be set by pressing the ∧ or ∨ button.

② Perform the adjustment by pressing the < or > button.

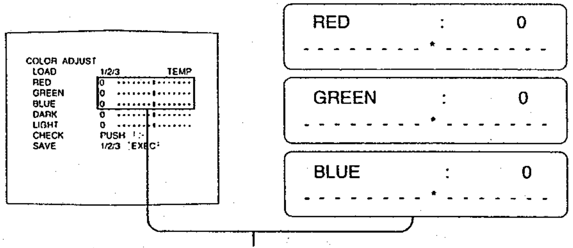
Adjustment item		Contents of setting
Color intensity	RED	Adjusting the red component of the image
	GREEN	Adjusting the green component of the image
	BLUE	Adjusting the blue component of the image
Color contrast	DARK	Adjusting the dark area of an image
	LIGHT	Adjusting the light area of an image

The RED, GREEN and BLUE color components and the contrast are divided into to 15 scales from –7 to +7, as indicated by a value and graph. And the center of the graph corresponds to the standard color.

Note

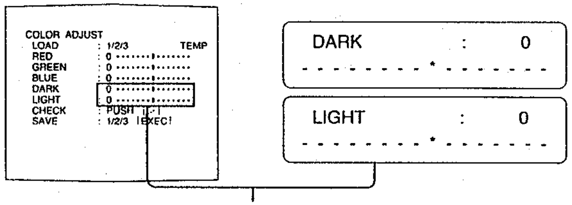
There is an unusable extra scale at the left end on the monitor display.

When adjusting RED/GREEN/BLUE



The intensity increases in the + direction by pressing the > button.
The intensity decreases in the – direction by pressing the < button.

When adjusting DARK/LIGHT



The contrast in the dark area or light area is strengthened in the + direction by pressing the > button. The contract in the dark area or light area is weakened in the – direction by pressing the < button.

Once you have changed the value

Once you have changed the value, TEMP (TEMPORARY) appears to the right of the LOAD item. TEMP indicates that the setting is temporary and not stored.

Continue to next page →

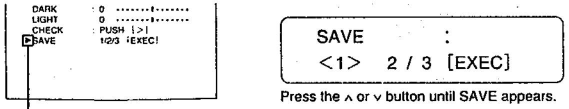
8 After you have made all necessary adjustments, check your presettings.

① Select CHECK by pressing the ∧ or ∨ button.

② Press the > button.
For as long as you keep the > button held down, the display does not appear on the screen.

You can make a printout with the settings made as above. Go to step 12 to make a printout. However, this setting is cleared when you turn the printer off or you select another preset. To store a new setting, go to the next step.

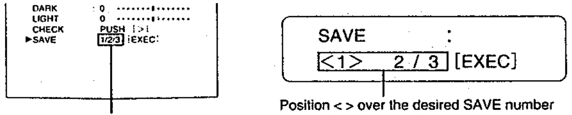
9 Select SAVE by pressing the ∧ or ∨ button.



Move the cursor to SAVE by pressing the ∧ or ∨ button.

Press the ∧ or ∨ button until SAVE appears.

10 Select the SAVE number to which new settings are to be stored by pressing the < or > button.



Switch the desired SAVE number to green by pressing the < or > button.

Position < > over the desired SAVE number by pressing the < or > button.

To preserve the original set value

Select the SAVE number which is different from the LOAD number selected in step 6.

11 Press the EXEC button.
The settings have been registered to the SAVE number selected in step 10. When the LOAD number selected in step 6 and the SAVE number selected in step 10 are the same, TEMP disappears from the LOAD item.

12 Press the MENU button.
The regular screen appears.

To recall settings

You can recall previously set values by selecting the LOAD number. The values are stored as SAVE numbers in steps 10 and 11. This SAVE number is the LOAD number for this setting.

1-12. PRINTER INITIAL SETUP

You can set up the following, using the on-screen menu and the DIP switches on the rear panel.

Setup with the menu

- Changing the printout area (see page 63)
- Compensating for input signals (see page 66)
- Matching the video monitor color to the printer color (see page 69)
- Erasing the screen display (see page 75)
- Selecting the operation mode for automatic printing capabilities (see page 78)

DIP switch settings

- Setting the printout size (see page 85)
- Setting the baud rate for computer communication (see page 85)
- MENU button function ON/OFF (see page 85)
- Selecting whether to lock to an external synchronous signal (GENLOCK) (see page 86)
- Selecting whether to enable the operation and error tones (see page 86)

Changing the Printout Area

The black line may be printed on the printout although it does not appear on the video monitor. The portion where no video signal exists is printed in black. This may occur when you make printouts after you connect a different video source or play back different video software.
In such a case, you can adjust the printout area by moving the screen horizontally and vertically.

When the black line is on the right

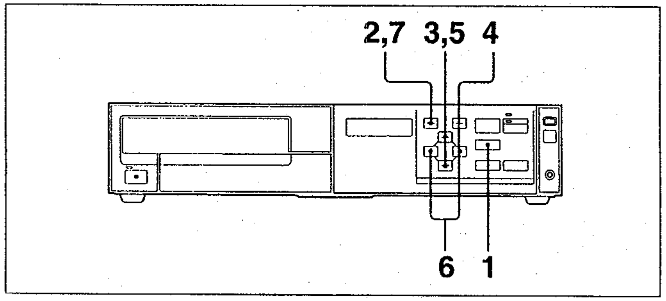
When the black line is on the left

When the black line is at the bottom

When the black line ios at the top

Note

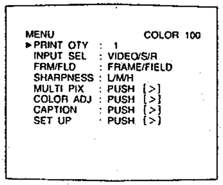
When the printout size is set to WIDE, the screen size cannot be adjusted vertically. (see "Setting the DIP switches" page 84)



1 When the memory image is displayed on the screen, press the SOURCE/ MEMORY button.
The image from the video source appears.

2 Press the MENU button.
The following screen appears.

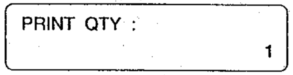
Video monitor screen



```
MENU                     COLOR 100
▶PRINT QTY  :  1
 INPUT SEL  : VIDEO/S/R
 FRM/FLD    : FRAME/FIELD
 SHARPNESS  : L/M/H
 MULTI PIX  : PUSH [>]
 COLOR ADJ  : PUSH [>]
 CAPTION    : PUSH [>]
 SET UP     · PUSH [>]
```

Main Menu screen

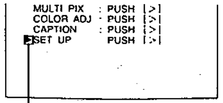
Printer window display



```
PRINT QTY :
                1
```

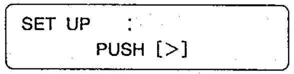
Part of the main menu

3 Select SET UP by pressing the ∧ or ∨ button.



```
 MULTI PIX  : PUSH [>]
 COLOR ADJ  · PUSH [>]
 CAPTION    : PUSH [>]
▶SET UP       PUSH [>]
```

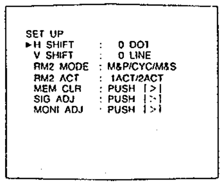
Move the cursor to SET UP by pressing the ∧ or ∨ button.



```
SET UP    :
      PUSH [>]
```

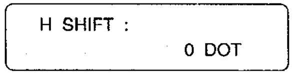
Press the ∧ or ∨ buttons until SET UP appears.

4 Press the > button.
The following screen appears.



```
SET UP
▶H SHIFT    :   0 DOT
 V SHIFT    :   0 LINE
 RM2 MODE   : M&P/CYC/M&S
 RM2 ACT    :  1ACT/2ACT
 MEM CLR    : PUSH |>|
 SIG ADJ    : PUSH |>|
 MONI ADJ   : PUSH |>|
```

SET UP sub menu

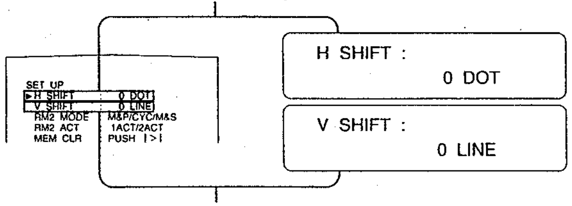


```
H SHIFT :
            0 DOT
```

Part of the SET UP sub menu

5 Select H SHIFT by pressing the ∧ or ∨ buttons, when the black line appears on the right or left.
Select V SHIFT by pressing ∧ or ∨ buttons, when the black line is at the top or bottom.

When the black line is on the right or left



```
SET UP
▶H SHIFT    :   0 DOT
 V SHIFT    :   0 LINE
 RM2 MODE   : M&P/CYC/M&S
 RM2 ACT    :  1ACT/2ACT
 MEM CLR    : PUSH |>|
```

```
H SHIFT :
            0 DOT
```

```
V SHIFT :
            0 LINE
```

When the black line is at the top or bottom

6 Adjust the horizontal value or vertical value by pressing the < or > button.

Item selected in step 5	The position where the black line appears	Button to be used	Operation
H SHIFT (horizontal direction)	On the right	> button	Shifting the image to the right by up to 14 dots in step 2 dots
	On the left	< button	Shifting the image to the left by up to 14 dots in step 2 dots
V SHIFT (vertical direction)	At the top	> button	In frame mode,shifting the image up by up to 6 lines in step 2 lines In field mode, shifting the image up by up to 3 lines in step 1 line
	At the bottom	< button	In frame mode, shifting the image down by up to 6 lines in step 2 lines In field mode, shifting the image down by up to 3 lines in step 1 line

7 Press the MENU button.
The regular screen appears.

To check the adjustment result

Any black line is also stored in memory with the previous image. Thus, store a new image to the memory and print it to check whether the black line disappears.

Note

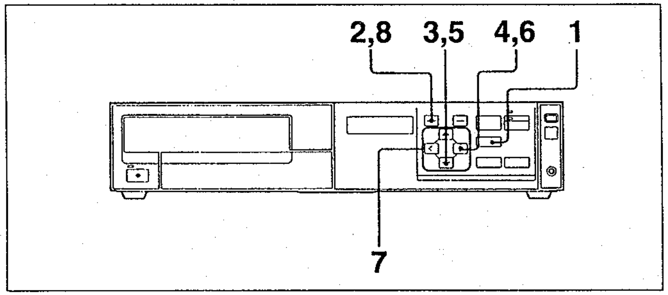
When a black line still remains even after adjusting H SHIFT or V SHIFT, change the screen size. (see "Setting the printout size" page 85)

Compensating for the Input Signals

Video image recorded under poor conditions may be of poor color quality. If the signal is an PAL composite video signal or separate luminance (Y) and chrominance (C) signals, you can correct the color of the input signal to a certain extent.

Note

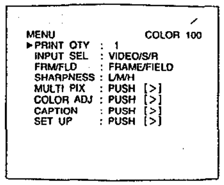
You cannot adjust the image once it has been stored in memory. Make adjustments before storing the image or store an image after adjustment.



1 When the memory image is displayed on the screen, press the SOURCE/ MEMORY button.
The image from the video source appears.

2 Press the MENU button.
The following screen appears.

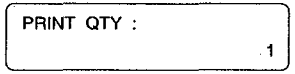
Video monitor screen



```
MENU                    COLOR 100
▶PRINT QTY  :  1
 INPUT SEL  : VIDEO/S/R
 FRM/FLD    : FRAME/FIELD
 SHARPNESS  : L/M/H
 MULTI PIX  : PUSH [>]
 COLOR ADJ  : PUSH [>]
 CAPTION    : PUSH [>]
 SET UP     : PUSH [>]
```

Main Menu screen

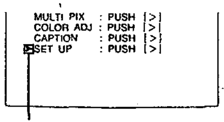
Printer window display



```
PRINT QTY :
                1
```

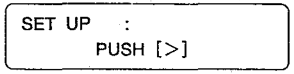
Part of the main menu

3 Select SET UP by pressing the ∧ or ∨ button.



```
 MULTI PIX  : PUSH [>]
 COLOR ADJ  : PUSH [>]
 CAPTION    : PUSH [>]
▶SET UP     : PUSH [>]
```

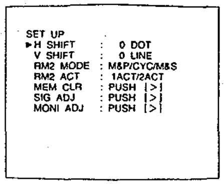
Move the cursor to SET UP by pressing the ∧ or ∨ button.



```
SET UP   :
       PUSH [>]
```

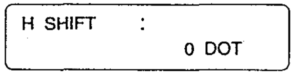
Press the ∧ or ∨ buttons until SET UP appears.

4 Press the > button.
The following screen appears.



```
SET UP
▶H SHIFT    :   0 DOT
 V SHIFT    :   0 LINE
 RM2 MODE   : M&P/CYC/M&S
 RM2 ACT    :  1ACT/2ACT
 MEM CLR    : PUSH [>]
 SIG ADJ    : PUSH [>]
 MONI ADJ   : PUSH [>]
```

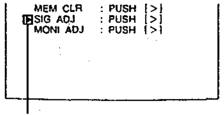
SET UP sub menu



```
H SHIFT   :
            0 DOT
```

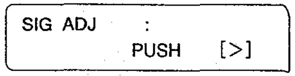
Part of the SET UP sub menu

5 Select SIG ADJ by pressing the ∧ or ∨ button.



```
 MEM CLR    : PUSH [>]
▶SIG ADJ    : PUSH [>]
 MONI ADJ   : PUSH [>]
```

Move the cursor to SIG ADJ by pressing the ∧ or ∨ button.

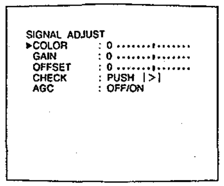


```
SIG ADJ    :
        PUSH    [>]
```

Press the ∧ or ∨ button until SIG ADJ appears.

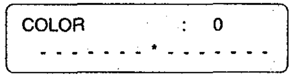
Continue to next page →

6 Press the > button.
The following screen appears.



```
SIGNAL ADJUST
▶COLOR      : 0 .......|.......
 GAIN       : 0 .......|.......
 OFFSET     : 0 .......|.......
 CHECK      : PUSH [>]
 AGC        : OFF/ON
```

SIGNAL ADJUST sub menu



```
COLOR        :  0
 - - - - - - - * - - - - - - -
```

Part of the SIGNAL ADJUST sub menu

7 Perform the adjustments as follows.
① Select the adjustment item by pressing the ∧ or ∨ button.
② Perform the adjustment by pressing the < or > button.

To adjust the color intensity, hue and contrast

Adjustment	Menu adjust-ment item	Button and operation result	
		> button	< button
Color intensity	COLOR[a]	The color intensity strengthens.	The color intensity weakens.
Contrast	GAIN	The contrast strengthens.	The contrast weakens.
Brightness	OFFSET	Becomes brighter	Becomes darker.

a) Adjust the color such that skin tones appear natural.

Note

When the black and white signal is input, set COLOR to –8. If COLOR is set to the value other than –8, display on the video monitor screen may not be colored.

When the printout or monitor image appears unnaturally bright

Adjust the input signal to the optimum level for printing.

Menu adjust-ment item	Selection	When selecting
AGC (Automatic gain control)	ON	Normal
	OFF	When the printout or monitor image appears unnaturally bright.

8 Press the MENU button.
The regular screen appears.

Matching the Video Monitor Color to the Printer Color

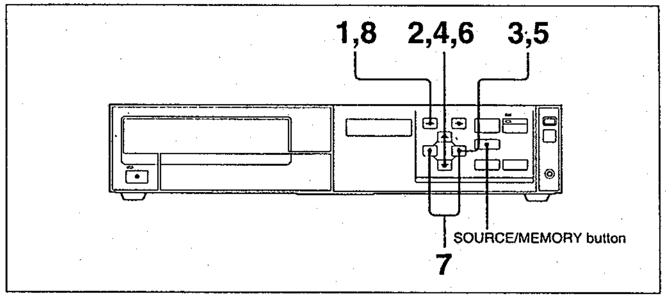
To match the color of the monitor image to that of the printout, adjust the monitor and printer colors such that the monitor color is the same as that of the printout. The printer outputs either of two kinds of video signals according to the MONITOR setting of the SET UP menu.

- E TO E: Signals are output to the monitor after being processed by the printer's circuitry.
- THRU (through): Signals are output to the monitor as is.

At the factory, the printer is adjusted such that the images for both signals appear identical. If they appear different, the video monitor may not be set correctly, even though the printer controls are set correctly. They may have been adjusted for another input signal. Adjust them to suit the new input signal.
First, adjust the monitor's color controls, then store and print an image. Compare the color on the monitor image with that of the printout.

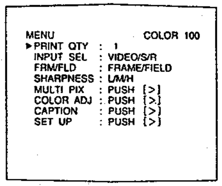
① Adjust the monitor color by selecting the THRU (THROUGH) signal.
② Adjust the printer color by selecting the E TO E signal.

Adjusting the monitor color



1 Press the MENU button.
The following screen appears.

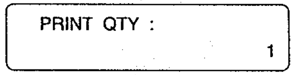
Video monitor screen



```
MENU                    COLOR 100
▶PRINT QTY  :  1
 INPUT SEL  : VIDEO/S/R
 FRM/FLD    : FRAME/FIELD
 SHARPNESS  : L/M/H
 MULTI PIX  : PUSH  [>]
 COLOR ADJ  : PUSH  [>]
 CAPTION    : PUSH  [>]
 SET UP     : PUSH  [>]
```

Main Menu screen

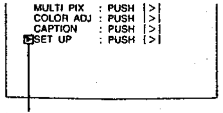
Printer window display



```
PRINT QTY :
                  1
```

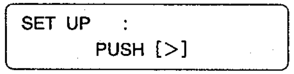
Part of the main menu

2 Select SET UP by pressing the ∧ or ∨ button.



```
 MULTI PIX  : PUSH  [>]
 COLOR ADJ  : PUSH  [>]
 CAPTION    : PUSH  [>]
▶SET UP     : PUSH  [>]
```

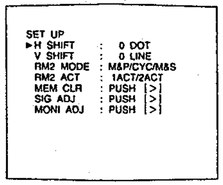
Move the cursor to SET UP by pressing the ∧ or ∨ button.



```
SET UP    :
      PUSH [>]
```

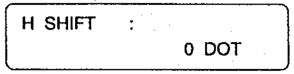
Press the ∧ or ∨ buttons until SET UP appears.

3 Press the > button.
The following screen appears.



```
SET UP
▶H SHIFT    :   0 DOT
 V SHIFT    :   0 LINE
 RM2 MODE   : M&P/CYC/M&S
 RM2 ACT    :  1ACT/2ACT
 MEM CLR    : PUSH  [>]
 SIG ADJ    : PUSH  [>]
 MONI ADJ   : PUSH  [>]
```

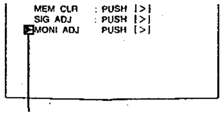
SET UP sub menu



```
H SHIFT    :
          0 DOT
```

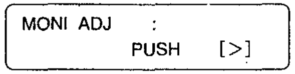
Part of the SET UP sub menu

4 Select MONI ADJ by pressing the ∧ or ∨ button.



```
MEM CLR   : PUSH [>]
SIG ADJ   : PUSH [>]
▶MONI ADJ   PUSH [>]
```

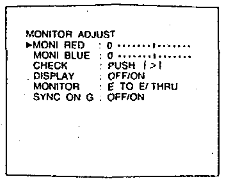
Move the cursor to MONI ADJ by pressing the ∧ or ∨ button.



```
MONI ADJ    :
         PUSH    [>]
```

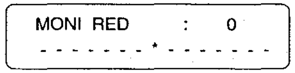
Press the ∧ or ∨ button until MONI ADJ appears.

5 Press the > button.
The following screen appears.



```
MONITOR ADJUST
▶MONI RED   : 0 ·······I·······
 MONI BLUE  : 0 ·······I·······
 CHECK      : PUSH [>]
 DISPLAY    : OFF/ON
 MONITOR    : E TO E/ THRU
 SYNC ON G  : OFF/ON
```

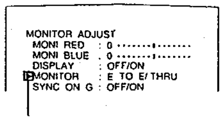
MONITOR ADJUST sub menu



```
MONI RED      :   0
- - - - - - - * - - - - - - -
```

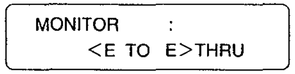
Part of the MONITOR ADJUST sub menu

6 Select MONITOR by pressing the ∧ or ∨ button.



```
MONITOR ADJUST
 MONI RED   : 0 ·······I·······
 MONI BLUE  . 0 ·······I·······
 DISPLAY    : OFF/ON
▶MONITOR    : E TO E/ THRU
 SYNC ON G  : OFF/ON
```

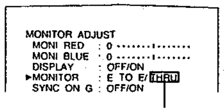
Move the cursor to MONITOR by pressing the ∧ or ∨ button.



```
MONITOR       :
       <E TO  E>THRU
```

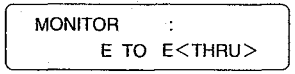
Press the ∧ or ∨ button until MONITOR appears.

7 Select THRU by pressing the < or > button.



```
MONITOR ADJUST
 MONI RED   : 0 ·······I·······
 MONI BLUE  : 0 ·······I·······
 DISPLAY    : OFF/ON
▶MONITOR    : E TO E/ THRU
 SYNC ON G  : OFF/ON
```

Switch to green.



```
MONITOR       :
         E TO  E<THRU>
```

8 Press the MENU button.
The regular screen appears.
The image of the signal directly from the signal source, which does not pass through the printer circuit, is displayed on the video monitor.

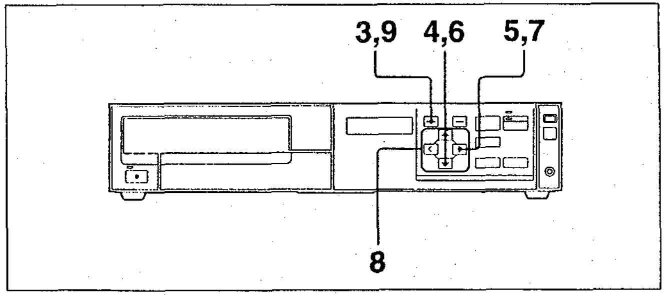
Note

When screen display appears on the video monitor, the memory image is displayed on the monitor. Display the image from the video equipment on the video monitor by pressing the SOURCE/MEMORY button.

9 Adjust the color of the video monitor by using the monitor controls.

Adjusting the color of the printer's output signal

After adjusting the color of the video monitor, adjust the color of the printer's output signal.

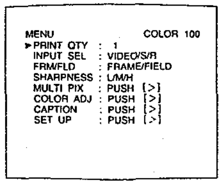


1 Set MONITOR ADJ to E TO E by performing steps 1 to 7 in "Adjusting the monitor color" on page 70.

2 Store a new image into memory and make a printout.
You will adjust the settings by comparing the printout with the image on the monitor.

3 Press the MENU button.
The following screen appears.

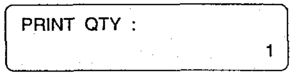
Video monitor screen



```
MENU                       COLOR 100
▶PRINT QTY  :  1
 INPUT SEL  : VIDEO/S/R
 FRM/FLD    : FRAME/FIELD
 SHARPNESS  : L/M/H
 MULTI PIX  : PUSH [>]
 COLOR ADJ  : PUSH [>]
 CAPTION    : PUSH [>]
 SET UP     : PUSH [>]
```

Main Menu screen

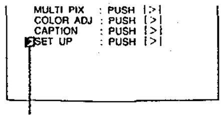
Printer window display



```
PRINT QTY :
                      1
```

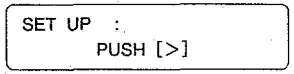
Part of the main menu

4 Select SET UP by pressing the ∧ or ∨ button.



```
 MULTI PIX  : PUSH [>]
 COLOR ADJ  : PUSH [>]
 CAPTION    : PUSH [>]
▶SET UP     : PUSH [>]
```

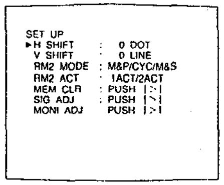
Move the cursor to SET UP by pressing the ∧ or ∨ button.



```
SET UP    :
      PUSH [>]
```

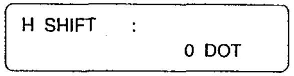
Press the ∧ or ∨ buttons until SET UP appears.

5 Press the > button.
The following screen appears.



```
SET UP
►H SHIFT    :   0 DOT
 V SHIFT    :   0 LINE
 RM2 MODE   : M&P/CYC/M&S
 RM2 ACT    :  1ACT/2ACT
 MEM CLR    : PUSH [>]
 SIG ADJ    : PUSH [>]
 MONI ADJ     PUSH [>]
```

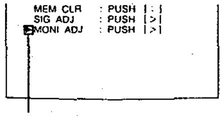
SET UP sub menu



```
H SHIFT    :
              0 DOT
```

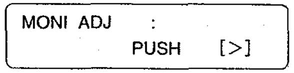
Part of the SET UP sub menu

6 Select MONI ADJ by pressing the ∧ or ∨ button.



```
 MEM CLR    : PUSH [>]
 SIG ADJ    : PUSH [>]
►MONI ADJ   : PUSH [>]
```

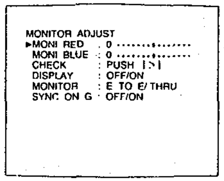
Move the cursor to MONI ADJ by pressing the ∧ or ∨ button.



```
MONI ADJ    :
          PUSH     [>]
```

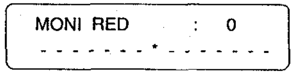
Press the ∧ or ∨ button until MONI ADJ appears.

7 Press the > button.
The following screen appears.



```
MONITOR ADJUST
►MONI RED    : 0 ········•········
 MONI BLUE   : 0 ········•········
 CHECK       : PUSH [>]
 DISPLAY     : OFF/ON
 MONITOR     : E TO E/ THRU
 SYNC ON G   : OFF/ON
```

MONITOR ADJUST sub menu



```
MONI RED       :    0
- - - - - - - * - - - - - - -
```

Part of the MONITOR ADJUST sub menu

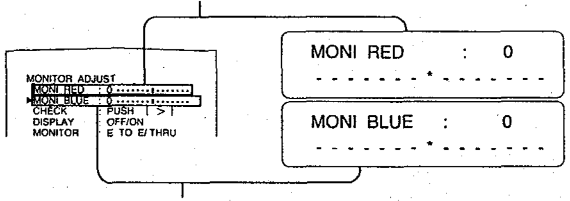
Continue to next page →

8 Adjust the monitor while comparing the printout with the image on the monitor.

① Select the adjustment item by pressing the ∧ or ∨ button.

② Perform the adjustment by pressing the < or > button.

Adjustment of the red component



```
MONITOR ADJUST
 MONI RED    : 0 ········•········
►MONI BLUE   : 0 ········•········
 CHECK       : PUSH [ > ]
 DISPLAY     : OFF/ON
 MONITOR     : E TO E/ THRU
```

```
MONI RED       :    0
- - - - - - - * - - - - - - -
```

```
MONI BLUE      :    0
- - - - - - - * - - - - - - -
```

Adjustment of the blue component

Adjustment	Menu adjustment item	Button and operation result	
		> button	< button
Adjustment of the red component	MONI RED	The red intensity increases.	The red intensity decreases.
Adjustment of the blue component	MONI BLUE	The blue intensity increases.	The blue intensity decreases.

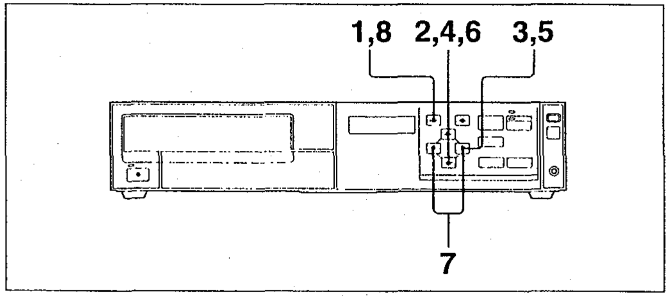
9 Press the MENU button.
The regular screen appears.

Note

This adjustment is performed to adjust the color of the printer output signal when the monitor color is unsatisfactory. This adjustment does not affect the printout itself. To adjust the color of the printouts, see "Adjusting the Printout Quality" on page 57.

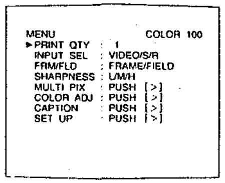
Erasing the Screen Display

You can erase a screen display with the menu, when, for example, it is hard to see the image that is hidden behind the screen display (C, QTY, VIDEO, and others). The printer operation is identical, regardless of whether screen display are displayed on the screen. You can always see same messages as the screen display on the printer display.



1 Press the MENU button.
The following screen appears.

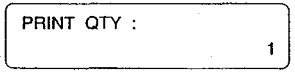
Video monitor screen



```
MENU                COLOR 100
▶PRINT QTY  :  1
 INPUT SEL  : VIDEO/S/R
 FRM/FLD    : FRAME/FIELD
 SHARPNESS  : L/M/H
 MULTI PIX  : PUSH [>]
 COLOR ADJ  : PUSH [>]
 CAPTION    : PUSH [>]
 SET UP     : PUSH [>]
```

Main Menu screen

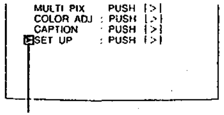
Printer window display



```
PRINT QTY :
                    1
```

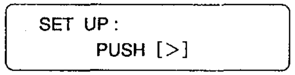
Part of the main menu

2 Select SET UP by pressing the ∧ or ∨ button.



```
 MULTI PIX    PUSH [>]
 COLOR ADJ  : PUSH [>]
 CAPTION      PUSH [>]
▶SET UP     : PUSH [>]
```

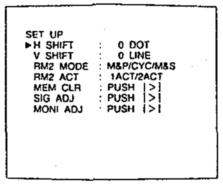
Move the cursor to SET UP by pressing the ∧ or ∨ button.



```
SET UP :
      PUSH [>]
```

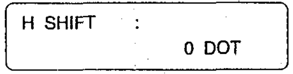
Press the ∧ or ∨ buttons until SET UP appears.

3 Press the > button.
The following screen appears.



```
SET UP
▶H SHIFT    :   0 DOT
 V SHIFT    :   0 LINE
 RM2 MODE   : M&P/CYC/M&S
 RM2 ACT    :  1ACT/2ACT
 MEM CLR    : PUSH [>]
 SIG ADJ    : PUSH [>]
 MONI ADJ   : PUSH [>]
```

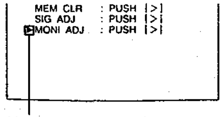
SET UP sub menu



```
H SHIFT    :
              0 DOT
```

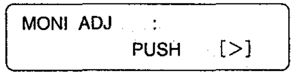
Part of the SET UP sub menu

4 Select MONI ADJ by pressing the ∧ or ∨ button.



```
 MEM CLR    : PUSH [>]
 SIG ADJ    : PUSH [>]
▶MONI ADJ   : PUSH [>]
```

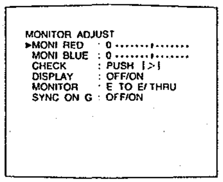
Move the cursor to MONI ADJ by pressing the ∧ or ∨ button.



```
MONI ADJ     :
          PUSH    [>]
```

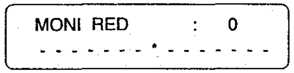
Press the ∧ or ∨ button until MONI ADJ appears.

5 Press the > button.
The following screen appears.



```
MONITOR ADJUST
▶MONI RED   : 0 .......|.......
 MONI BLUE  : 0 .......|.......
 CHECK      : PUSH [>]
 DISPLAY    : OFF/ON
 MONITOR    : E TO E/THRU
 SYNC ON G  : OFF/ON
```

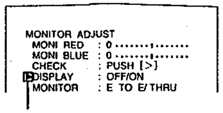
MONITOR ADJUST sub menu



```
MONI RED        :   0
- - - - - - - - * - - - - - - -
```

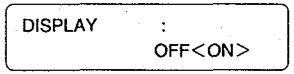
Part of the MONITOR ADJUST sub menu

6 Select DISPLAY by pressing the ∧ or ∨ button.



```
MONITOR ADJUST
 MONI RED   : 0 .......|.......
 MONI BLUE  : 0 .......|.......
 CHECK      : PUSH [>]
▶DISPLAY    : OFF/ON
 MONITOR    : E TO E/THRU
```

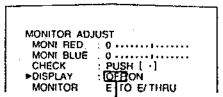
Move the cursor to DISPLAY by pressing the ∧ or ∨ button.



```
DISPLAY      :
            OFF<ON>
```

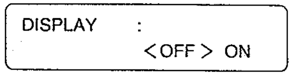
Press the ∧ or ∨ button until DISPLAY appears.

7 Select OFF by pressing the < or > button.



```
MONITOR ADJUST
  MONI RED    : 0 .......|.......
  MONI BLUE   . 0 .......|.......
  CHECK       : PUSH [ ·]
►DISPLAY      : OFF ON
  MONITOR       E TO E/ THRU
```

Switch to green.



```
DISPLAY    :
                <OFF> ON
```

To display screen message

In step 7, select ON.

Note

If you set the printer output signal specification to THRU (through), screen display does not appear, even when you switch ON to green.

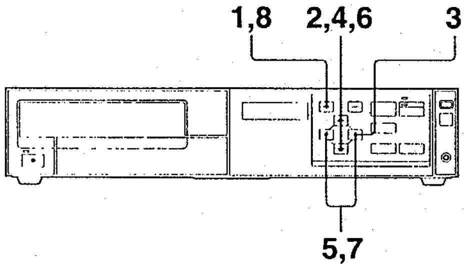
8 Press the MENU button.
The regular screen appears.

Selecting the Operation Mode for Automatic Printing Capabilities

You can control the printer with the RM-91 remote commander connected to the REMOTE 2 connector on the rear panel.
In addition to the above, the printer can be controlled by the pulse signal input to REMOTE 2. (see page 92)

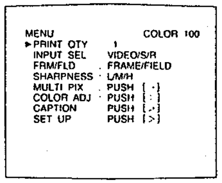
Note

When controlling the printer with the remote control unit, set INTERVAL of the memory mode to OFF. (see page 27)



1 Press the MENU button.
The following screen appears.

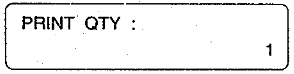
Video monitor screen



```
MENU                      COLOR 100
►PRINT QTY        1
  INPUT SEL      VIDEO/S/R
  FRM/FLD      . FRAME/FIELD
  SHARPNESS    · L/M/H
  MULTI PIX    . PUSH [ ·]
  COLOR ADJ    · PUSH [ : ]
  CAPTION        PUSH [.·]
  SET UP         PUSH [ >]
```

Main Menu screen

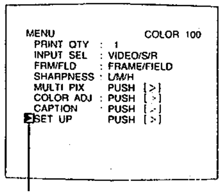
Printer window display



```
PRINT QTY :
                    1
```

Part of the main menu

2 Select SET UP by pressing the ∧ or ∨ button.



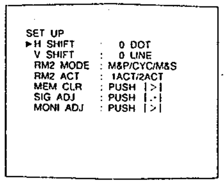
```
MENU                      COLOR 100
  PRINT QTY   :  1
  INPUT SEL   : VIDEO/S/R
  FRM/FLD     : FRAME/FIELD
  SHARPNESS   : L/M/H
  MULTI PIX     PUSH [>]
  COLOR ADJ   : PUSH [>]
  CAPTION     : PUSH [>]
▶SET UP         PUSH [>]
```

Move the cursor to SET UP by pressing the ∧ or ∨ button.

```
SET UP   :
        PUSH [>]
```

Press the ∧ or ∨ buttons until SET UP appears.

3 Press the > button.
The following screen appears.



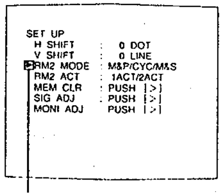
```
SET UP
▶H SHIFT      :  0 DOT
 V SHIFT      :  0 LINE
 RM2 MODE     : M&P/CYC/M&S
 RM2 ACT      :  1ACT/2ACT
 MEM CLR      : PUSH [>]
 SIG ADJ      : PUSH [>]
 MONI ADJ     : PUSH [>]
```

SET UP sub menu

```
H SHIFT :
             0 DOT
```

Part of the SET UP sub menu

4 Select RM2 MODE by pressing the ∧ or ∨ button.



```
SET UP
 H SHIFT      :  0 DOT
 V SHIFT      :  0 LINE
▶RM2 MODE     : M&P/CYC/M&S
 RM2 ACT      :  1ACT/2ACT
 MEM CLR      : PUSH [>]
 SIG ADJ      : PUSH [>]
 MONI ADJ     : PUSH [>]
```

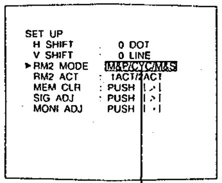
Move the cursor to RM2 MODE by pressing the ∧ or ∨ button

```
RM2 MODE :
        <M&P> CYC/M&S
```

Press the ∧ or ∨ button until RM2 MODE appears.

Continue to next page →

5 Select the desired operation method by pressing the < or > button.



```
SET UP
 H SHIFT      :  0 DOT
 V SHIFT      :  0 LINE
▶RM2 MODE     : M&P/CYC/M&S
 RM2 ACT      :  1ACT/2ACT
 MEM CLR      : PUSH [>]
 SIG ADJ      : PUSH [>]
 MONI ADJ     : PUSH [>]
```

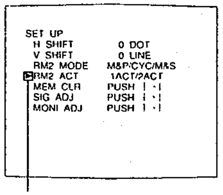
Switch the desired operation method to green.

```
RM2 MODE :
        M&P/CYC<M&S>
```

Position < > over the desired operation method.

Type of control operation	Operation method
M & P (MEMORY & PRINT)	Storing an image into memory page and printing memory image. If you press the switch of the remote commander while printing is being performed, the selected image is queued, with the queued image being printed once printing has been completed.
CYC (CYCLIC MEMORY)	Storing images to memory page cyclically whenever you press the switch of the remote commander. The printer continues to store images, replacing previously stored images with the new one.
M & S (MEMORY & STOP)	Storing an image to memory page whenever you press the switch of the remote commander The printer stops storing images to memory page once images have been stored to all memory pages. The Message STOP STOP STOP appears.

6 Select RM2 ACT by pressing the ∧ or ∨ button.



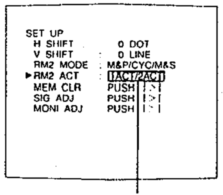
```
SET UP
 H SHIFT         0 DOT
 V SHIFT         0 LINE
 RM2 MODE      M&P/CYC/M&S
▶RM2 ACT        1ACT/2ACT
 MEM CLR       PUSH [>]
 SIG ADJ       PUSH [>]
 MONI ADJ      PUSH [>]
```

Move the cursor to RM2 ACT by pressing the ∧ or ∨ button

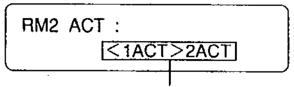
```
RM2 ACT :
        <1ACT>2ACT
```

Press the ∧ or ∨ button until RM2 ACT appears

7 Select the desired operating condition by pressing the < or > button.



Switch the desired operating condition to green



Position < > over the desired operating condition

Type of operating condition	Operating condition
1ACT	Whenever you press the switch of the remote commander, the printer automatically stores the image into the next memory page. You cannot check an image to be next stored in memory.
2ACT	Whenever you press the switch of the remote commander, the printer automatically stores the image and you can check an image to be next stored in memory.

8 Press the MENU button.
The regular screen appears.

Controlling the printer by the remote commander

The printer is remotely controlled according to the RM2 ACT setting.

When ACT1 is selected

Operation method selected in step 5	Operation
M & P (MEMORY & PRINT)	Storing an image in free memory page and simultaneously printing it whenver you press the switch of the remote commander. If you press the switch of the remote commander while printing is being performed, the selected stored image is queued, with the queued image being printed, once printing has been completed.
CYC (CYCLIC MEMORY)	Storing an image to free memory page cyclically whenever you press the switch of the remote commander. The printer continues to store images, replacing previously stored images with the new one.
M & S (MEMORY & STOP)	Storing an image to free memory page whenever you press the switch of the remote commander. The printer stops storing images to memory page once images have been stored to all memory pages. The message STOP STOP STOP appears.

To make the message STOP STOP STOP disappear
Press the STOP button. The printer is reset to the normal printing mode.

When SPLIT MEM of the MULTI PICTURE sub menu is set to 4 or 16
For example, when the memory mode is set to store four reduced images in a memory page, press the switch of the remote commander to store one reduced image to each position. When M & P is selected, the printer stores the image for the fourth position and make a printout of four reduced images when you press the switch of the remote commander the fourth time.

Note
When the image in a memory page is queued for printing, that memory page is automatically skipped.

When ACT2 is selected

Display the video source image before starting operation.

Operation method selected in step 5	Operation
M & P (MEMORY & PRINT)	**When SPLIT MEM is set to OFF** ① Press the switch of the remote commander at the instant when the image you want to print appears. The image is stored in the free memory page. ② Press the switch of the remote commander. The image stored in step 1 is printed. The video source image appears on the video monitor. ③ Repeat steps 1 and 2. **When SPLIT MEM is set to 4 or 16** Once the printer have been stored the last reduced image, the printer makes a printout of multiple reduced images. For example, when 4 is selected, the fourth reduced image is stored after you press the switch of the remote commander the seventh time. When you press the switch of the remote commander the eighth time, the printer makes a printout of the four reduced images.
CYC (CYCLIC MEMORY)[a]	① Press the switch of the remote commander at the instant when the image you want to print appears. The image is stored in the free memory page. ② Press the switch of the remote commander. The video source image appears on the video monitor. ③ Repeat steps 1 and 2. An image is stored to the memory page cyclically. The printer continues to store images, replacing previously stored images with the new one.
M & S (MEMORY & STOP)[a]	① Press the switch of the remote commander at the instant when the image you want to print appears. The image is stored in the free memory page. ② Press the switch of the remote commander. The video source image appears on the video monitor. ③ Repeat steps 1 and 2. An image is stored to the memory page whenever you press the switch of the remote commander. The printer stops storing images to the memory page once images have been stored to all memory pages. The message STOP STOP STOP appears.

a) When SPLIT MEM is set to 4 or 16: The printer repeats the operation described above, whenever the printer stores one reduced image to each position.

To make the message STOP STOP STOP disappear

Press the STOP button. The printer is reset to the normal printing mode.

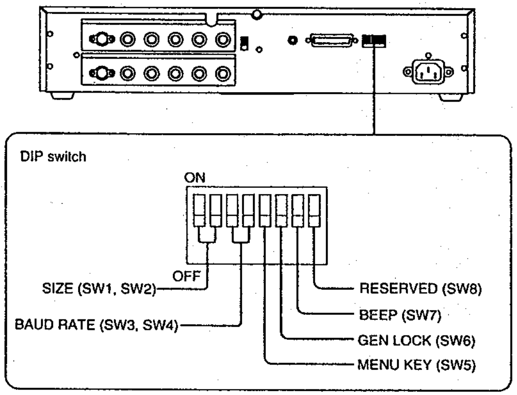
Note

When the image in a memory page is queued for printing, that memory page is automatically skipped.

Setting the DIP Switches

You can make the following five settings by using the DIP switches on the rear panel.

- Setting of the printout size (see page 85)
- Setting of the baud rate for computer communication (see page 85)
- Setting of the MENU button function ON/OFF (see page 85)
- Selecting whether lock to an external synchronous signal (GENLOCK) (see page 86)
- Selecting whether the operation and error tones sound (see page 86)



Note

Before changing the DIP switch setting, turn the printer power off. The former setting with the DIP switch remains if you change the switch settings with the power on.

Setting the printout size

When you print an image that is narrower or wider than the standard screen size, the black frame may be printed or the image may be partially cut. In such a case, you can change the screen size.
The printer supports the following three sizes, NA (NARROW), NO (NORMAL) and W (WIDE).
Use DIP switches SW1 and SW2 to set the printout size.

When changing	Printout size	Size (dots × line)	SW1 set position	SW2 set position
When a black frame is printed.	NA (NARROW)	708 (H) × 448 (V)	OFF	ON
Normal	NO (NORMAL)	720 (H) × 472 (V)	OFF	OFF
When an image is partially cut	W (WIDE)	772 (H) × 488 (V)	ON	OFF

Setting the baud rate for computer communication

When controlling the printer with a personal computer connected to the RS-232C connector, select the appropriate baud rate. Use DIP switches SW3 and SW4 to set the baud rate.

Baud rate (bps)	SW3 set position	SW4 set position
1200	OFF	OFF
2400	ON	OFF
4800	OFF	ON
9600	ON	ON

Selecting whether to enable the MENU button functions

You can inhibit the MENU button operation. To make printouts with fixed menu values without performing any menu operations during normal printing, set the MENU button function to OFF. Use DIP switch SW5 to select the MENU button function.

When changing	MENU button function	SW5 set position
To make the MENU button operable	OFF (NORMAL)	OFF
To inhibit MENU button operation	ON (INHIBIT)	ON

Selecting whether to lock to an external synchronous signal (GENLOCK)

You can select whether the printer is locked to the external synchronous signal when sending a video signal to the video monitor connected to the OUTPUT connectors on the rear panel.
Use DIP switch SW6 to set this item.

When changing	GENLOCK ON/OFF	SW6 set position
Not to be locked to the external synchronous signal	OFF (FREE)	OFF
To be locked to the external synchronous signal	ON (LOCK)	ON

Note
When GENLOCK is not to ON (LOCK), the printer may not work correctly if irregular signal (such as search mode or stop mode signal) is input to the printer.

Selecting whether the operation and error tones sound

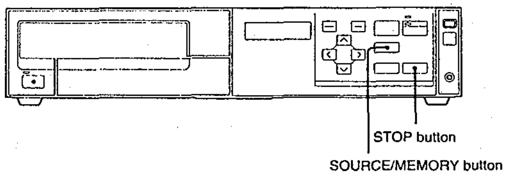
Whenever you use the MEMORY IN, SOURCE/MEMORY, PRINT and STOP button on the front panel, the operation tone sounds (one time). When an error occurs, the alarm tone sounds (three times). You can turn these tones on and off.
Use DIP switch SW7 to set this item.

When changing	BEEP (tone) ON/OFF	SW7 set position
To sound the tones	ON (sounding)	OFF
To disable the tones	OFF (not sounding)	ON

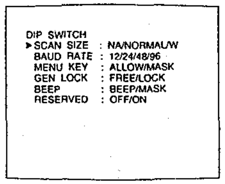
Note
Even when BEEP is set to OFF (not sounding), operation tone or error tones sound when the printer power is turned on, or any error has occurred.

Displaying the DIP switch settings on the video monitor

You can check the DIP switch settings on the video monitor and printer window display.

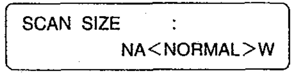


Press the SOURCE/MEMORY button, holding down the STOP button.
The following screen appears.



```
DIP SWITCH
▶SCAN SIZE  : NA/NORMAL/W
 BAUD RATE  : 12/24/48/96
 MENU KEY   : ALLOW/MASK
 GEN LOCK   : FREE/LOCK
 BEEP       : BEEP/MASK
 RESERVED   : OFF/ON
```

The selected setting is displayed in green.



```
SCAN SIZE      :
        NA<NORMAL>W
```

To return to the regular screen, press the MENU button.

Note

When displaying the DIP switch settings on the video monitor and in the printer window display:
Characters and numbers displayed on the video monitor display and in the printer window display are abbreviated. Note that some of the DIP switch settings on the rear panel of the printer differ from those displayed on the video monitor display and in the printer window display or those used for explanations of the DIP switch settings on pages 84 to 86 of this manual.
See the following table.

Indication on monitor display and in the printer window display		DIP switch setting on the rear panel
MENU	ALLOW	OFF (NORMAL)
	MASK	ON (INHIBIT)
BEEP	BEEP	ON (sounding)
	MASK	OFF (not sounding)

1-13. ERROR MESSAGES

If a problem occurs, the ALARM lamp lights in orange when an error message or a warning message appears. The message which states the problem appears on the monitor and in the printer window display. This section lists error and warning messages in alphabetical order, together with their possible causes and remedies. Note the message and act accordingly.

Error message	Possible causes and remedies
CHECK RIBBON SETTING	The front panel (on the right from the user's standpoint) opens accidentally during printing. → Close the front panel. (see page 9)
FEED ERROR	The paper jams as it is being fed into the ribbon area around the paper tray → Remove the jammed paper from the printer (see page 94)
HEAD IN COOLING	The thermal head has overheated. → Leave the printer idle and until the head cools and this message disappears
NO CARTRIDGE	The ink ribbon cassette is not correctly installed. → Insert the ink ribbon cassette correctly (see page 8)
NO PAPER	The paper has been exhausted. → Load paper. (see page 10)
PAPER ERROR	The paper that cannot be used with this printer has been loaded → Insert the appropriate paper. (see page 90)
PREHEATING	The thermal head is preheating. → Leave the printer until the head has preheated and this message disappears.
REMOVE PRINTS	The paper has jammed near the paper cover → Remove the jammed paper from the printer. (see page 94)
REMOVE STUCK PAPER	The paper has jammed during printing. → Remove the jammed paper from the printer. (see page 94)
RIBBON & PAPER MISMATCH	The ink ribbon cassette and paper are not compatible. → Use a compatible cassette/paper combination. (see page 90)
RIBBON DOOR OPEN	The front panel (on the right from the user's standpoint) is open → Close the front panel. (see page 9)
RIBBON END	The ink ribbon cassette has been exhausted → Insert a new ink ribbon cassette. (The ink ribbon cannot be reused.) (see page 8)
RIBBON ERROR	An ink ribbon cassette that cannot be used with this printer has been loaded → Insert the appropriate ink ribbon cassette. (see page 90)

If ERRORxx appears

If this message appears, perform the following.

1 Turn off the power of the printer.

2 Remove the ink ribbon cassette, paper cover and paper tray, and check for any paper jams inside the printer. (see "Loading an Ink Ribbon Cassette" page 8 and "Loading Paper" page 10)
If you find any jammed paper, remove it carefully.

If the ink ribbon cassette cannot be removed, or the jammed paper cannot be removed, contact your Sony service facility.

3 Insert the ink ribbon cassette, paper cover and paper tray to the printer.

4 Turn on the power of the printer.
When the message does not appear, you can use the printer as normal. However, the image stored to memory will have been cleared. Store the image to memory again.

If the same message appears again, the printer must not be operated. Turn off the power immediately and contact your Sony service facility.

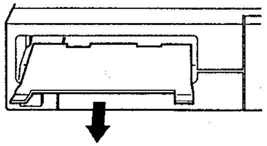
If the paper jams

If the paper jams as it is being fed into the ribbon area during printing, or when being fed into the paper cover area, printing stops and a message appears on the monitor and in the printer window display, according to where the jam has occurred.

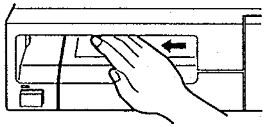
Message	Position where the paper has jammed
FEED ERROR	Before printing and being fed into the ribbon area
REMOVE STUCK PAPER	During printing, inside the printer
REMOVE PRINTS	Instantaneously before completing printing, near the paper cover

When FEED ERROR appears

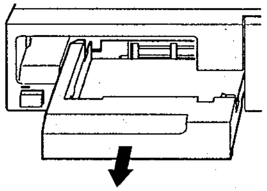
1 Remove the paper cover.
When any printouts have been ejected on the paper cover, remove those printouts first before removing the paper cover.



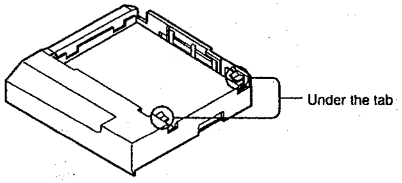
2 Check whether any paper is stuck inside the printer. If you find a jammed sheet, slowly pull it into the paper tray.



3 Remove the paper tray.

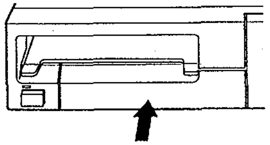


4 Load the paper into the paper tray correctly.
Discard the paper removed in step 2.



Continue to next page →

5 Slide the paper tray and paper cover back into the printer.



When REMOVE STUCK PAPER appears

Perform the same operation as that performed when FEED ERROR appears. When you cannot remove the jammed paper, remove the ink ribbon cassette, too. If you find a jammed sheet inside the printer, remove it carefully.

When REMOVE PRINTS appears

Carefully remove the jammed paper from near the paper cover.

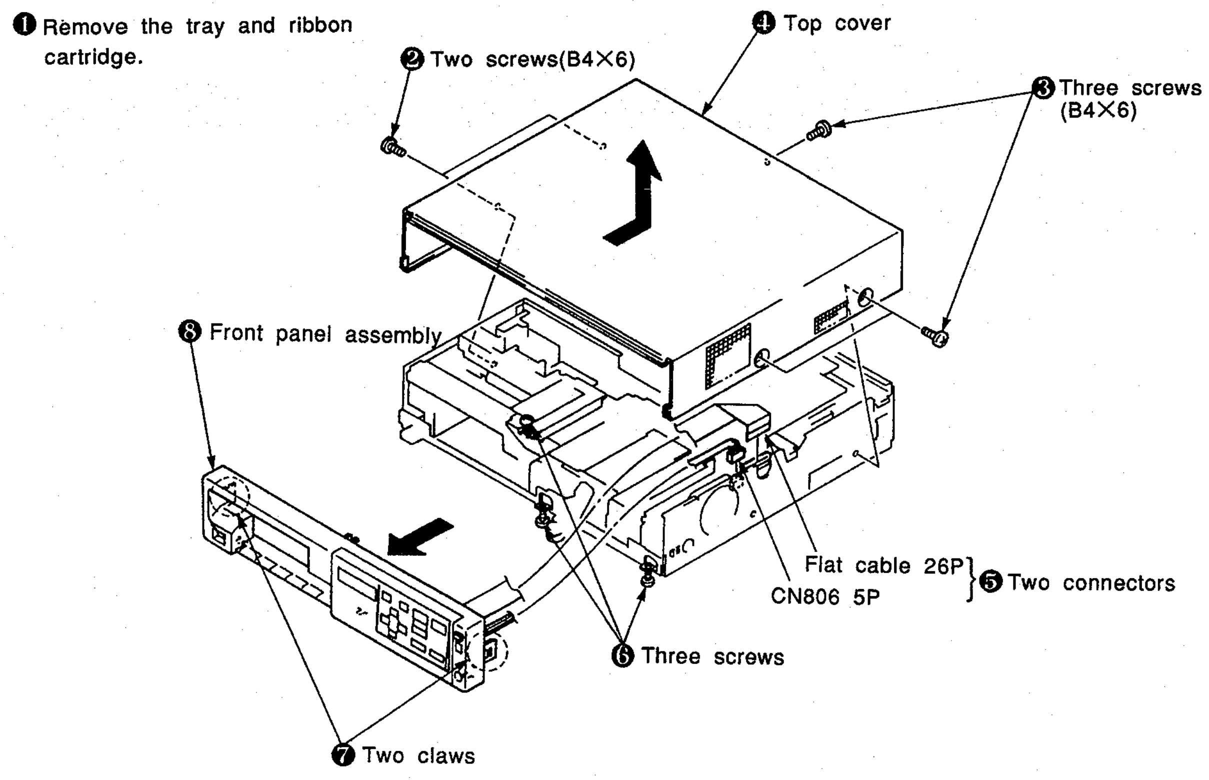
1-14. TROUBLESHOOTING

The following troubleshooting checks will help you correct the most common problems encountered with your unit. Before proceeding with these trouble checks, first check that the power cord is firmly connected. Should the problem persist, unplug the unit and contact your Sony dealer or local authorized Sony service facility.

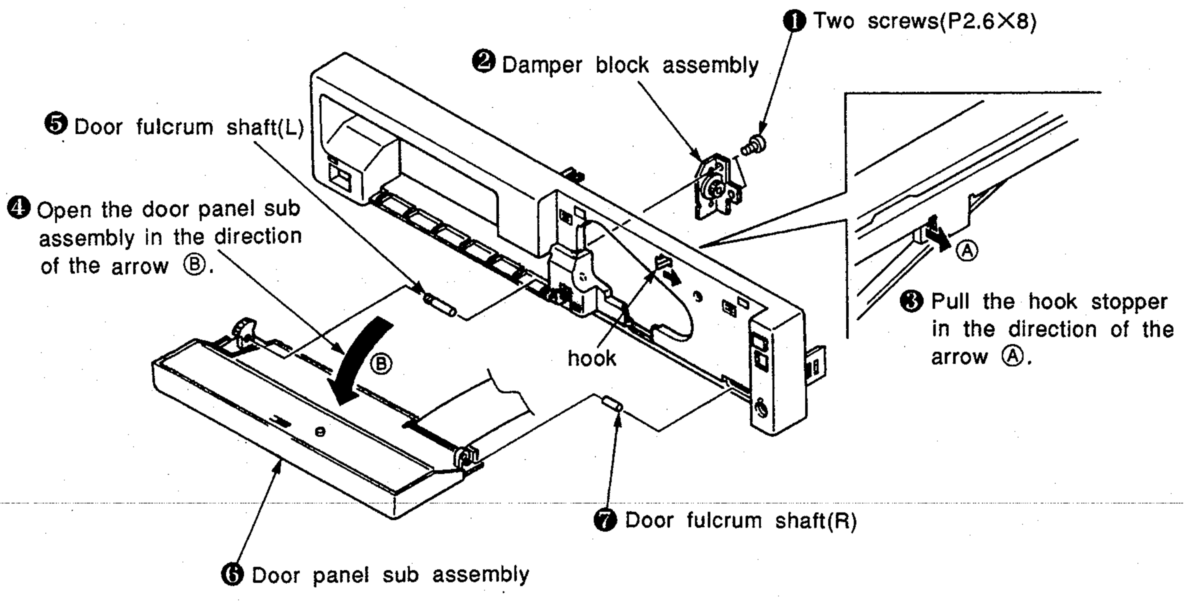
Symptom	Possible causes and remedies
Nothing appears on the monitor.	The POWER switch of the printer is not set to ON. → Set the POWER switch of the printer to ON. The POWER switch of the monitor is not set to ON. → Set the POWER switch of the monitor to ON. Connections may not be correct. → Make connections correctly. (see page 52)
Any message does not appear on the regular screen.	If an incorrect sync signal is input, nothing may appear on the monitor. → In this case, check the monitor first by pressing the SOURCE/MEMORY button to display the image stored in memory. If an image appears, the monitor is working correctly. Change the INPUT SEL settings on the menu screen. (see page 12) Or, set the connected video equipment to playback mode, if it is in another mode such as stop mode.
Any message and image do not appear on the regular screen.	If an image stored in memory appears when the SOURCE/MEMORY button is pressed, the MONITOR settings on the MONITOR ADJUST sub menu is set to THRU. → Change the MONITOR settings on the MONITOR ADJUST sub menu to E TO E. (see page 71)
The printer does not print.	An error message appears on the display.(see page 93)
A black line appears on the printout.	A portion corresponding to there being no signal is printed in black. → Shift the printout area. (see page 63) Store a new image and print it.
The printer makes a printout with black frame	A portion corresponding to there being no signal is printed in black. → Change the printout size to make it narrow. (see page 85) Store a new image and print it.
The printed image is partially cut out.	Only a part of video signal has been stored. → Change the printout size to make it wide. (see page 85) Store a new image and print it.
A caption is not printed clearly.	Printed in field mode. → Store the image in frame mode and print it in frame mode.
The printout is blurred.	The quickly moving image has been stored in frame mode. → Change the mode to field mode, then print it again.

SECTION 2
DISASSEMBLY

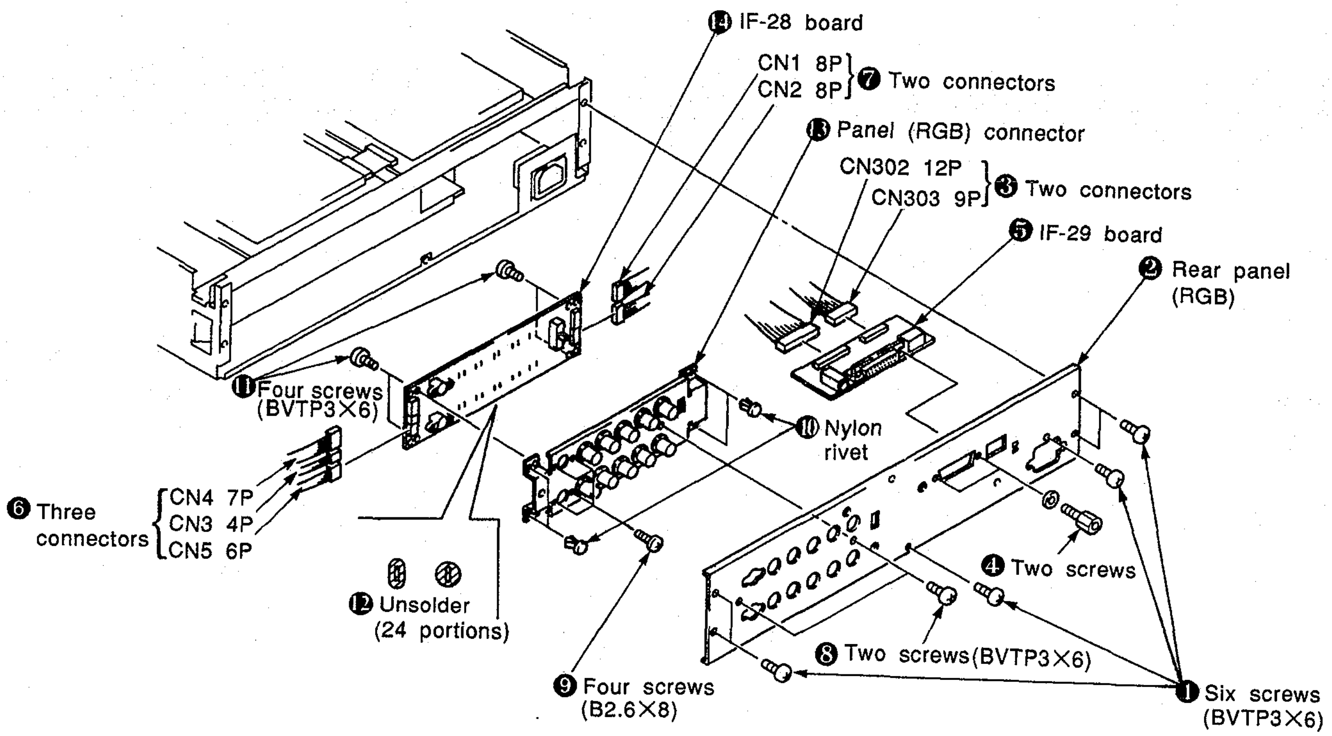
2-1. REMOVAL OF CABINET ASSEMBLY


❶ Remove the tray and ribbon cartridge.
❹ Top cover
❷ Two screws(B4×6)
❸ Three screws (B4×6)
❽ Front panel assembly
Flat cable 26P
CN806 5P
❺ Two connectors
❻ Three screws
❼ Two claws

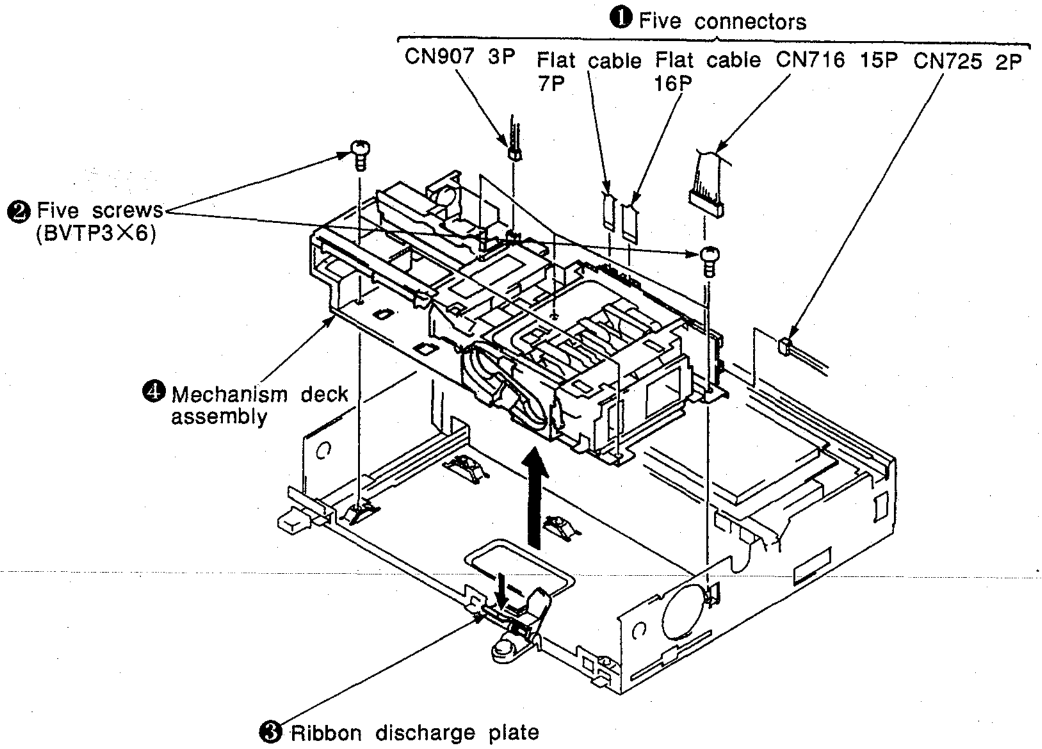
2-2. REMOVAL OF DOOR PANEL SUB ASSEMBLY


❶ Two screws(P2.6×8)
❷ Damper block assembly
❺ Door fulcrum shaft(L)
❹ Open the door panel sub assembly in the direction of the arrow Ⓑ.
Ⓐ
Ⓑ
hook
❸ Pull the hook stopper in the direction of the arrow Ⓐ.
❼ Door fulcrum shaft(R)
❻ Door panel sub assembly

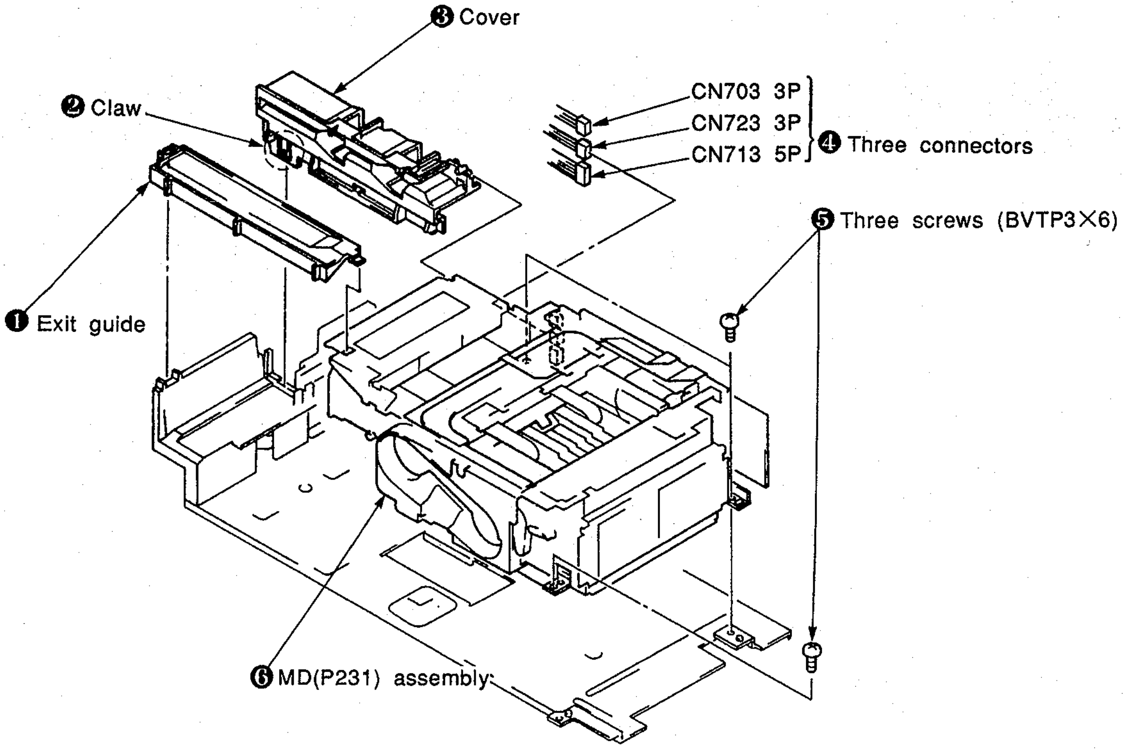
2-3. REMOVAL OF IF-29 AND IF-28 BOARDS


⑭ IF-28 board
CN1 8P
CN2 8P
⑦ Two connectors
⑬ Panel (RGB) connector
CN302 12P
CN303 9P
③ Two connectors
⑤ IF-29 board
② Rear panel (RGB)
⑪ Four screws (BVTP3×6)
⑩ Nylon rivet
⑥ Three connectors
CN4 7P
CN3 4P
CN5 6P
④ Two screws
⑫ Unsolder (24 portions)
⑧ Two screws (BVTP3×6)
⑨ Four screws (B2.6×8)
① Six screws (BVTP3×6)

2-4. REMOVAL OF MECHANISM DECK ASSEMBLY

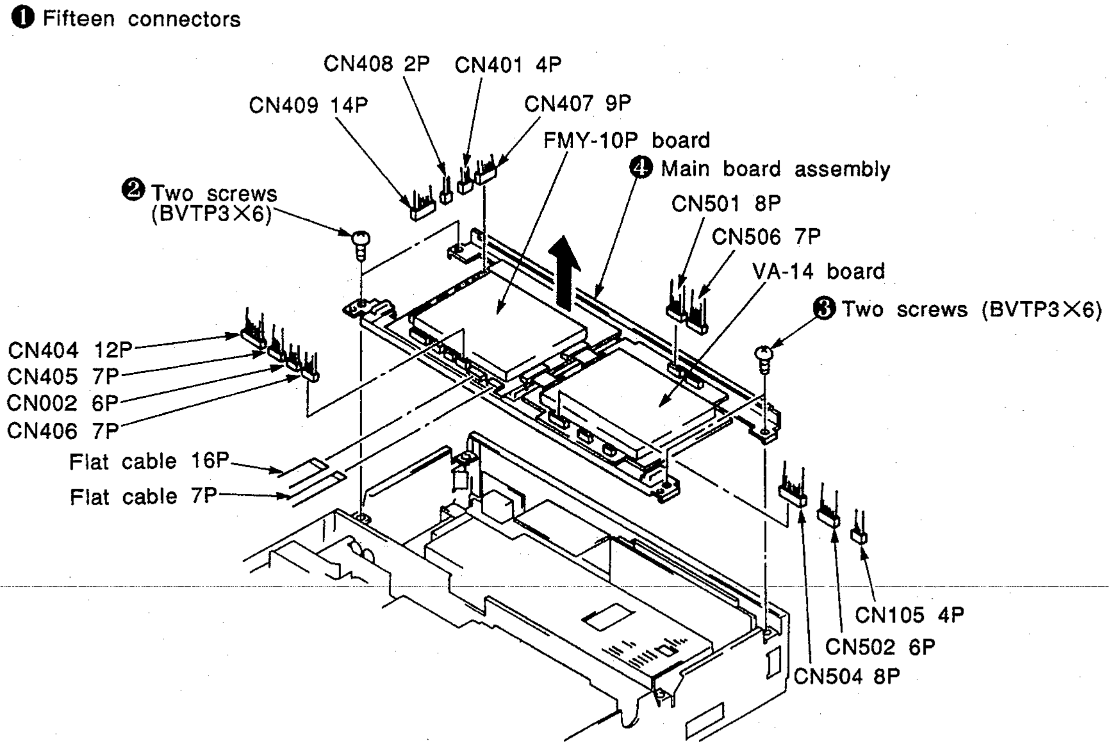

① Five connectors
CN907 3P
Flat cable 7P
Flat cable 16P
CN716 15P
CN725 2P
② Five screws (BVTP3×6)
④ Mechanism deck assembly
③ Ribbon discharge plate

2-5. REMOVAL OF MD (P231) ASSEMBLY



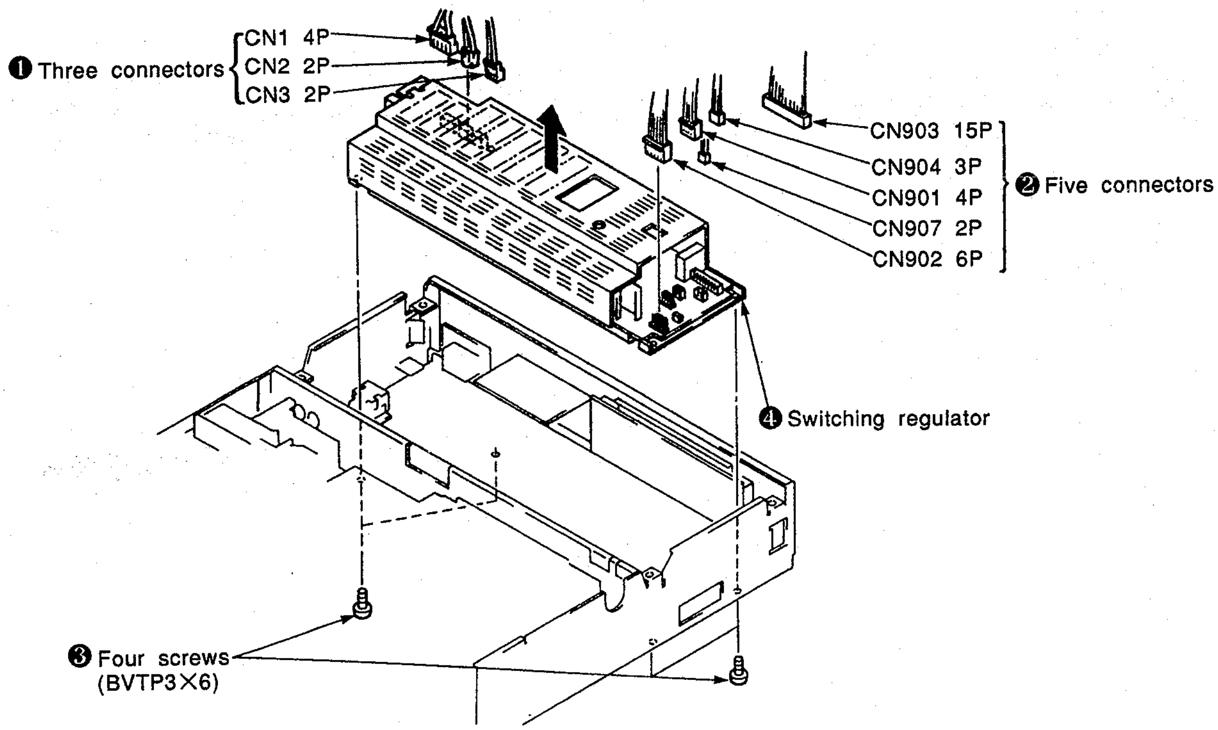
❸ Cover
❷ Claw
CN703 3P
CN723 3P
CN713 5P
❹ Three connectors
❺ Three screws (BVTP3×6)
❶ Exit guide
❻ MD(P231) assembly

2-6. REMOVAL OF MAIN BOARD (FMY-10P BOARD, VA-14 BOARD) ASSEMBLY

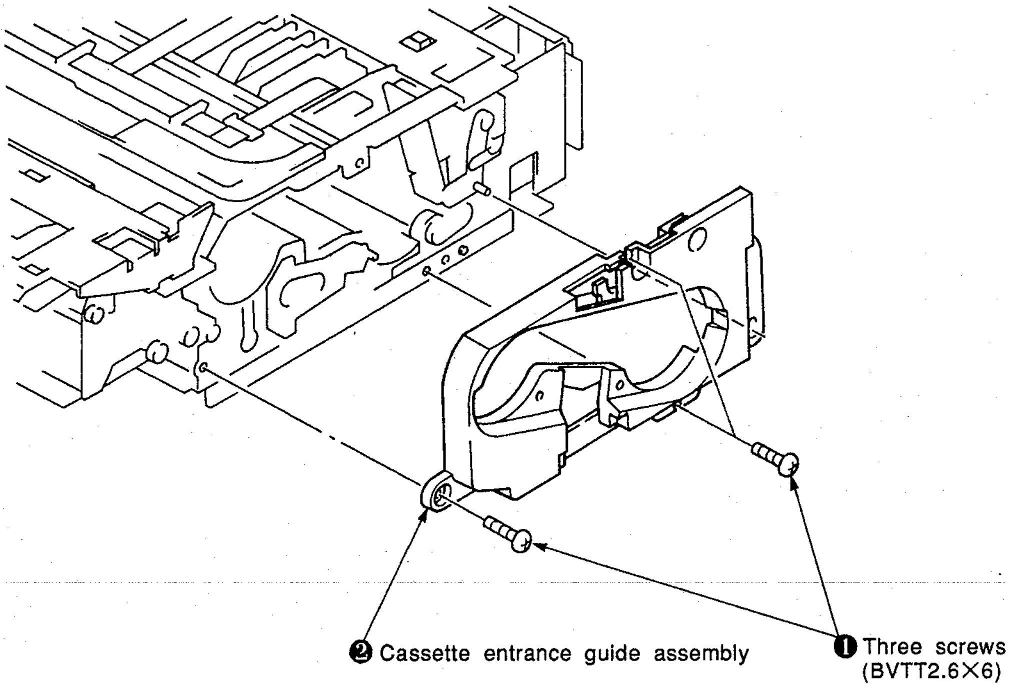


❶ Fifteen connectors
CN408 2P
CN401 4P
CN409 14P
CN407 9P
FMY-10P board
❹ Main board assembly
❷ Two screws (BVTP3×6)
CN501 8P
CN506 7P
VA-14 board
❸ Two screws (BVTP3×6)
CN404 12P
CN405 7P
CN002 6P
CN406 7P
Flat cable 16P
Flat cable 7P
CN105 4P
CN502 6P
CN504 8P

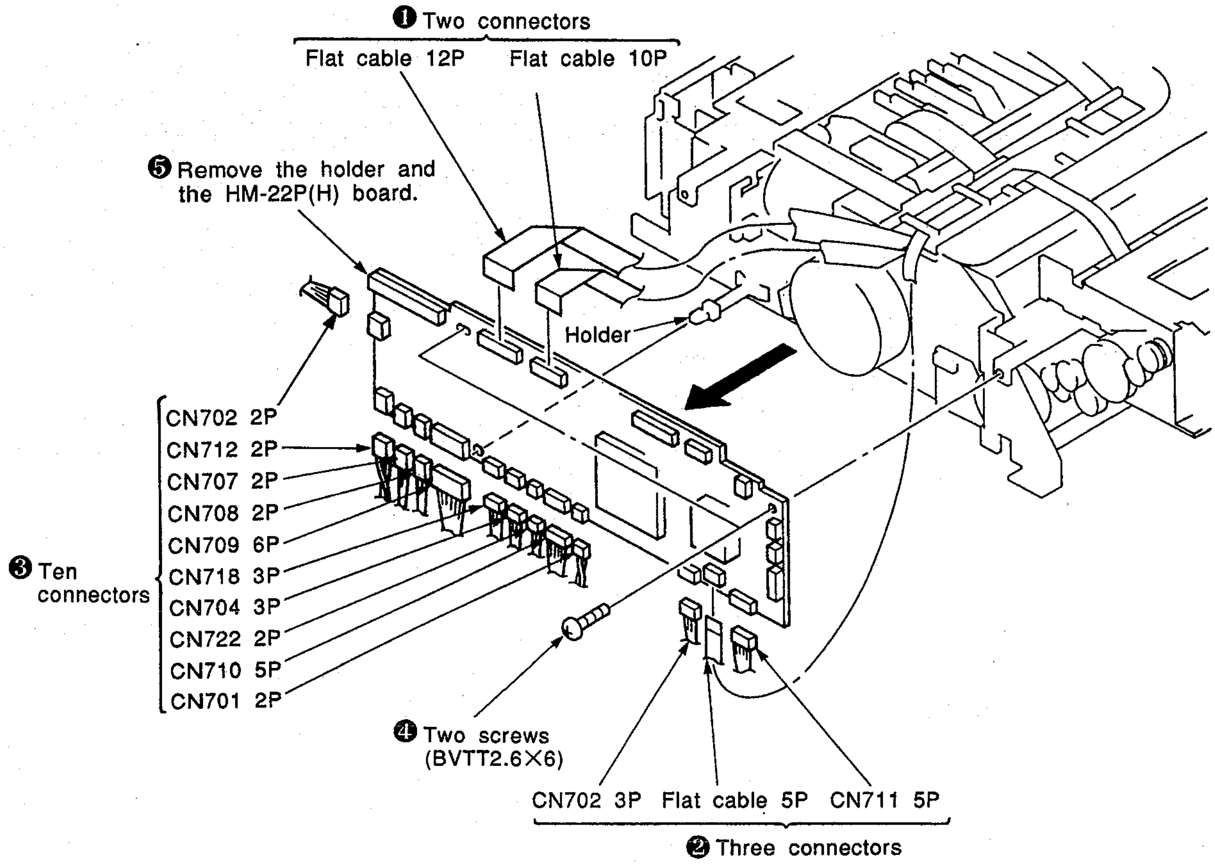
2-7. REMOVAL OF SWITCHING REGULATOR


❶ Three connectors
CN1 4P
CN2 2P
CN3 2P
CN903 15P
CN904 3P
CN901 4P
CN907 2P
CN902 6P
❷ Five connectors
❹ Switching regulator
❸ Four screws
(BVTP3×6)

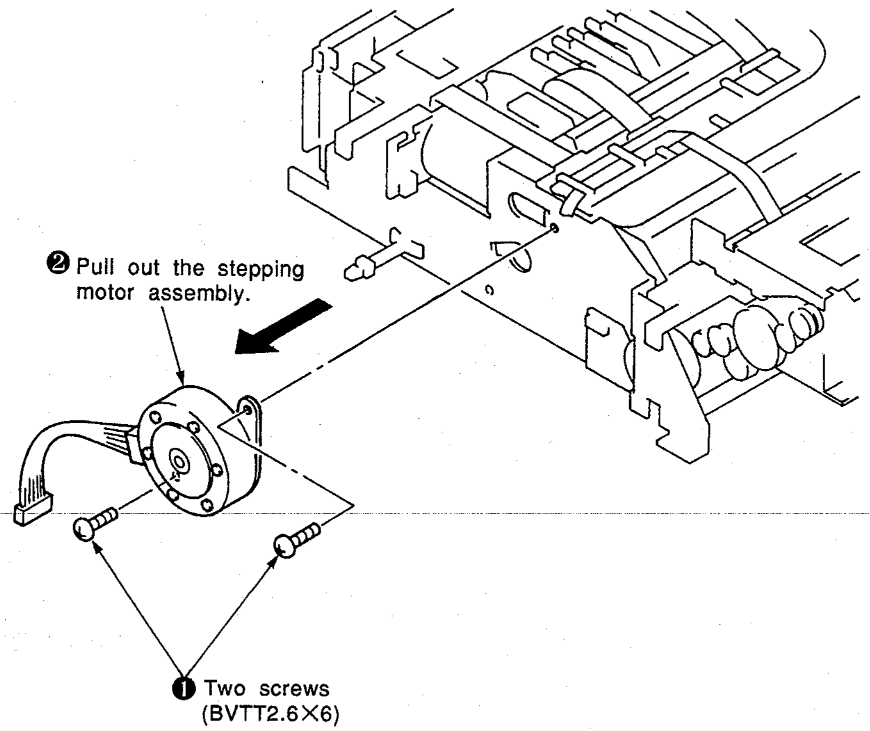
2-8. REMOVAL OF CASSETTE ENTRANCE GUIDE ASSEMBLY


❷ Cassette entrance guide assembly
❶ Three screws
(BVTT2.6×6)

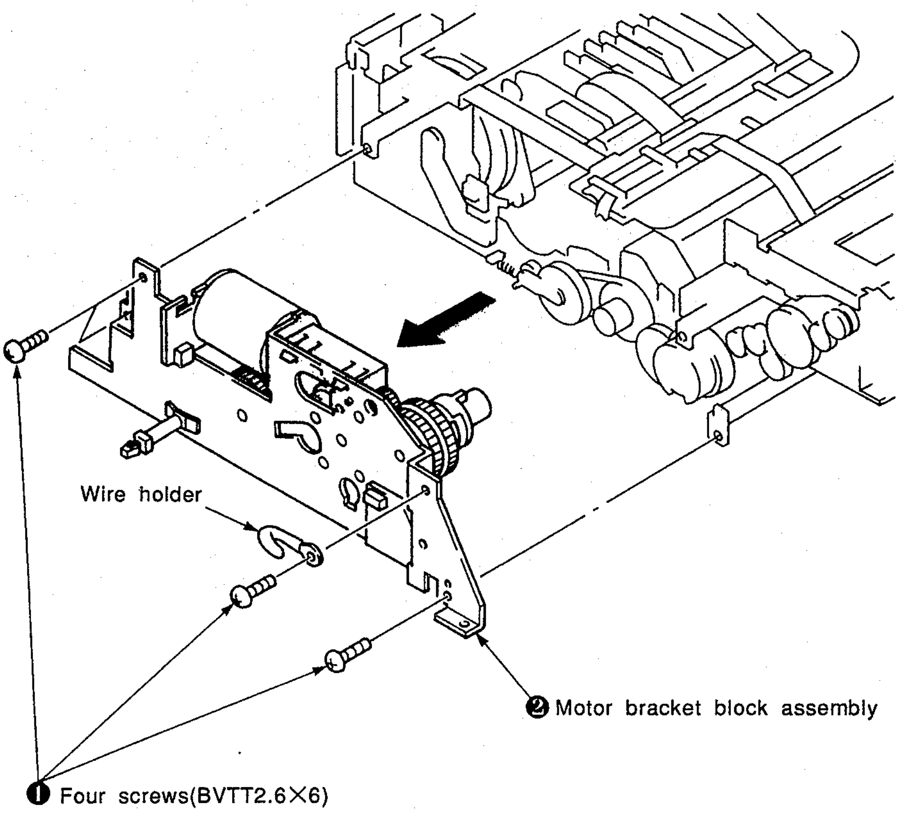
2-9. REMOVAL OF HM-22P(H) BOARD


❶ Two connectors
Flat cable 12P
Flat cable 10P
❺ Remove the holder and the HM-22P(H) board.
Holder
❸ Ten connectors
CN702 2P
CN712 2P
CN707 2P
CN708 2P
CN709 6P
CN718 3P
CN704 3P
CN722 2P
CN710 5P
CN701 2P
❹ Two screws (BVTT2.6×6)
CN702 3P
Flat cable 5P
CN711 5P
❷ Three connectors

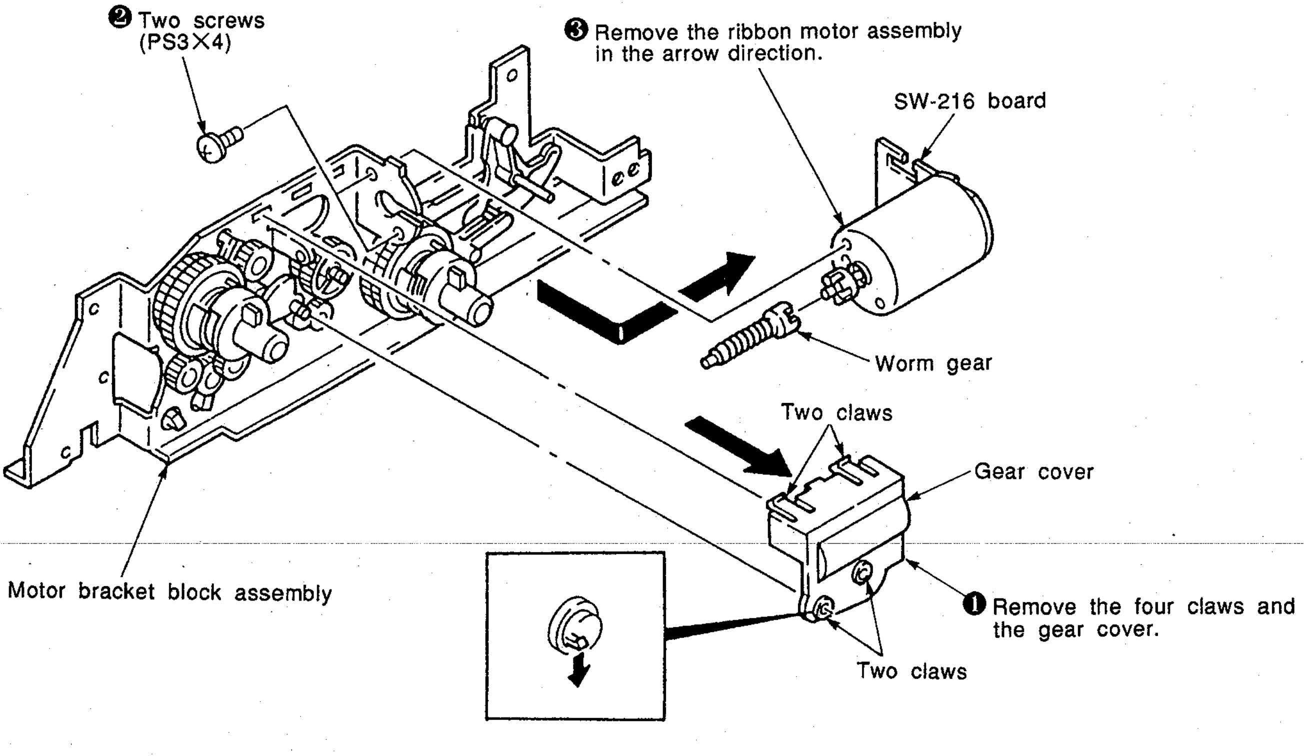
2-10. REMOVAL OF STEPPING MOTOR ASSEMBLY


❷ Pull out the stepping motor assembly.
❶ Two screws (BVTT2.6×6)

2-11. REMOVAL OF MOTOR BRACKET BLOCK ASSEMBLY

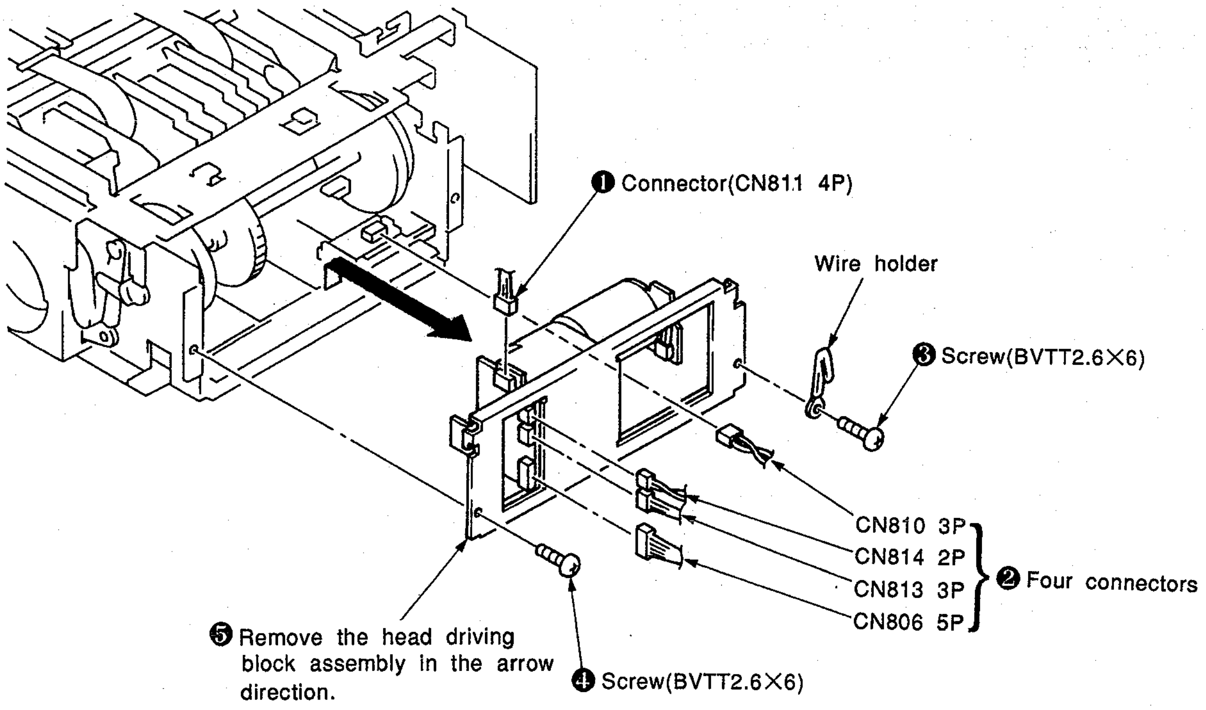

Wire holder
❷ Motor bracket block assembly
❶ Four screws(BVTT2.6×6)

2-12. REMOVAL OF RIBBON MOTOR ASSEMBLY

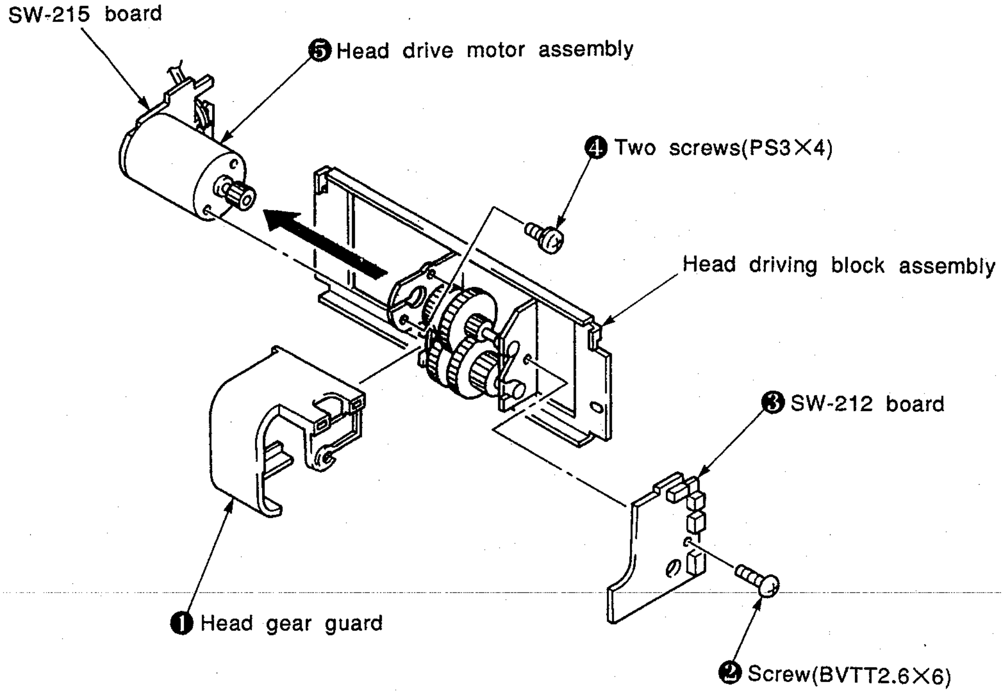

❷ Two screws (PS3×4)
❸ Remove the ribbon motor assembly in the arrow direction.
SW-216 board
Worm gear
Two claws
Gear cover
Motor bracket block assembly
❶ Remove the four claws and the gear cover.
Two claws

2-13. REMOVAL OF HEAD DRIVING BLOCK ASSEMBLY

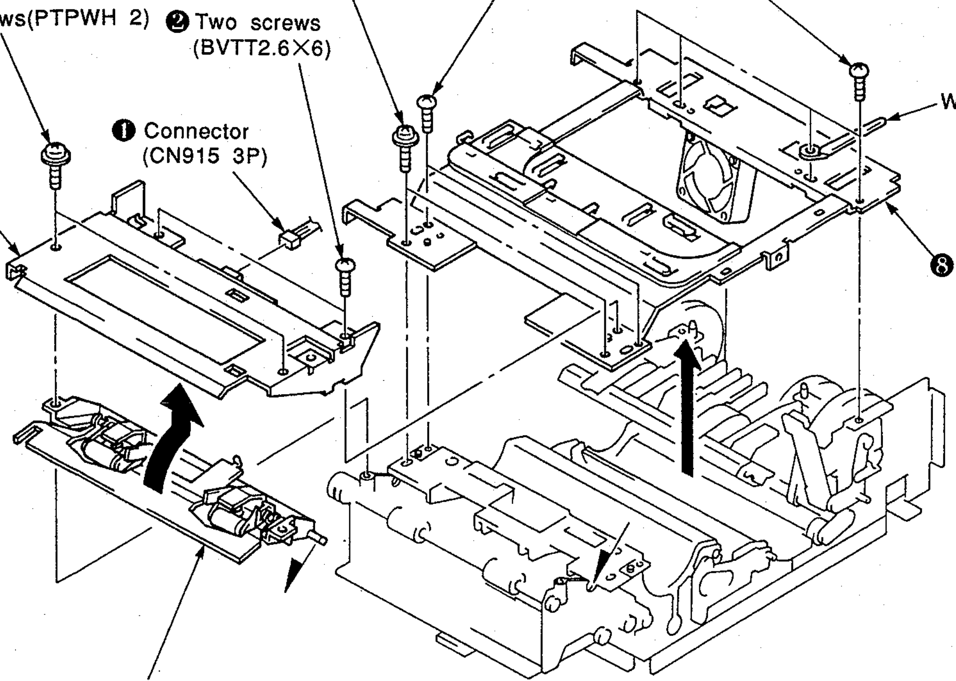
※ Perform this assembly after LARGE FAN BK is removed.


❶ Connector(CN811 4P)
Wire holder
❸ Screw(BVTT2.6×6)
CN810 3P
CN814 2P
CN813 3P
CN806 5P
❷ Four connectors
❺ Remove the head driving block assembly in the arrow direction.
❹ Screw(BVTT2.6×6)

2-14. REMOVAL OF HEAD DRIVE MOTOR ASSEMBLY


SW-215 board
❺ Head drive motor assembly
❹ Two screws(PS3×4)
Head driving block assembly
❸ SW-212 board
❶ Head gear guard
❷ Screw(BVTT2.6×6)

2-15. REMOVAL OF UPPER GUIDE ASSEMBLY AND TOP PLATE BLOCK ASSEMBLY


❶ Connector (CN915 3P)

❷ Two screws (BVTT2.6×6)

❸ Two screws(PTPWH 2)

❹ Top cover

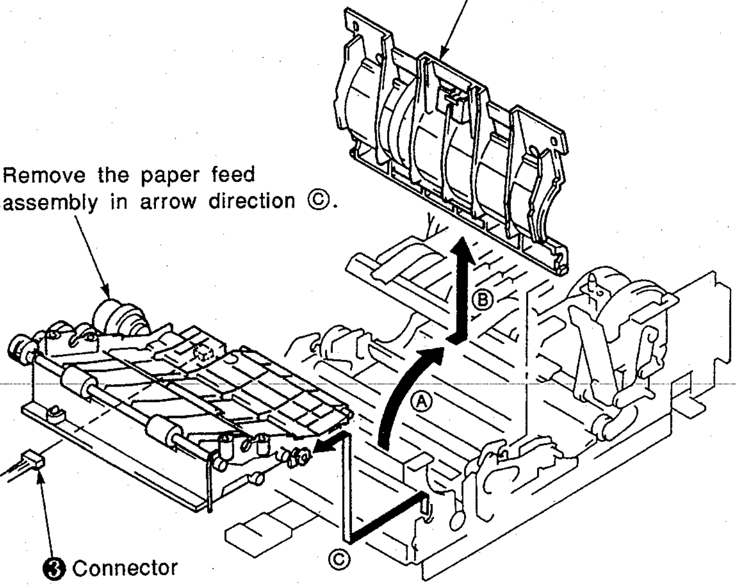
❺ Remove the upper guide assembly in the arrow direction.

❻ Two screws (PTPWH 2)

❼ Six screws(BVTT2.6×6)

❽ Top plate block assembly

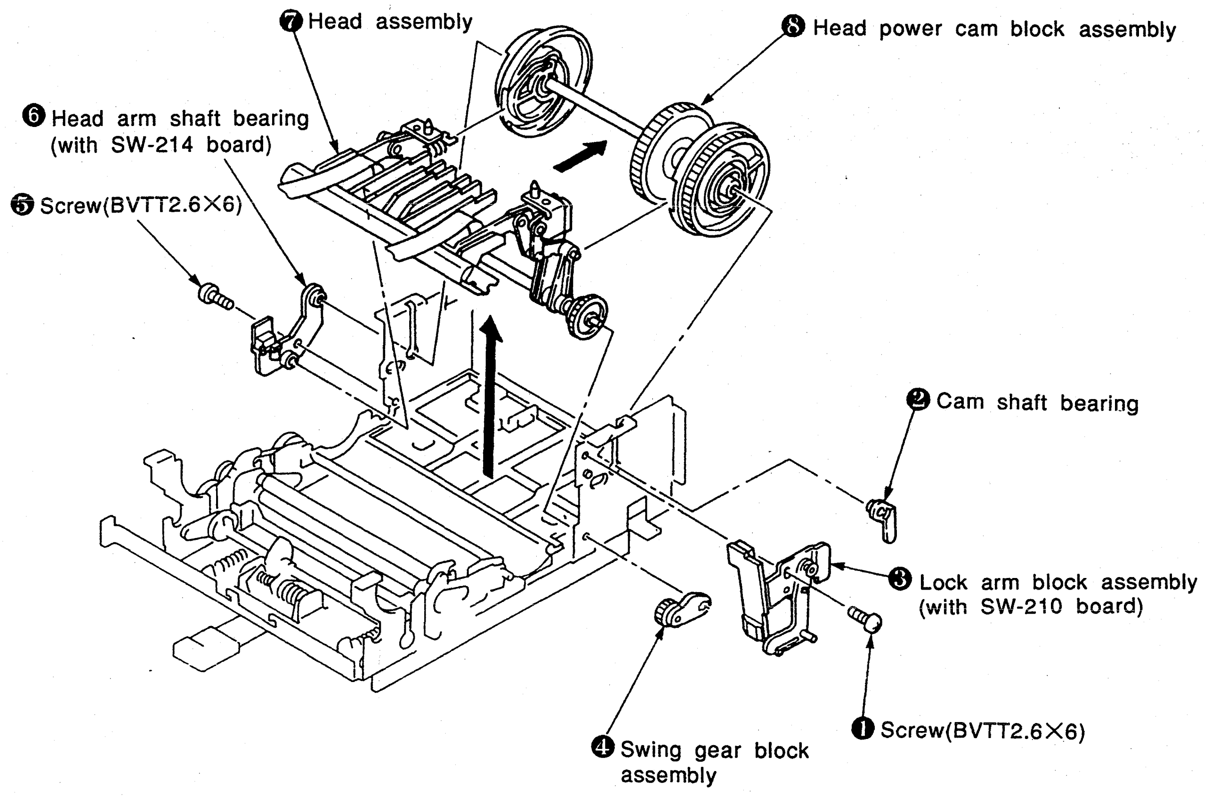
2-16. REMOVAL OF CASSETTE GUIDE 1 AND PAPER FEED ASSEMBLY


❶ Open the cassette guide 1 in the arrow direction Ⓐ and remove it in arrow direction Ⓑ.

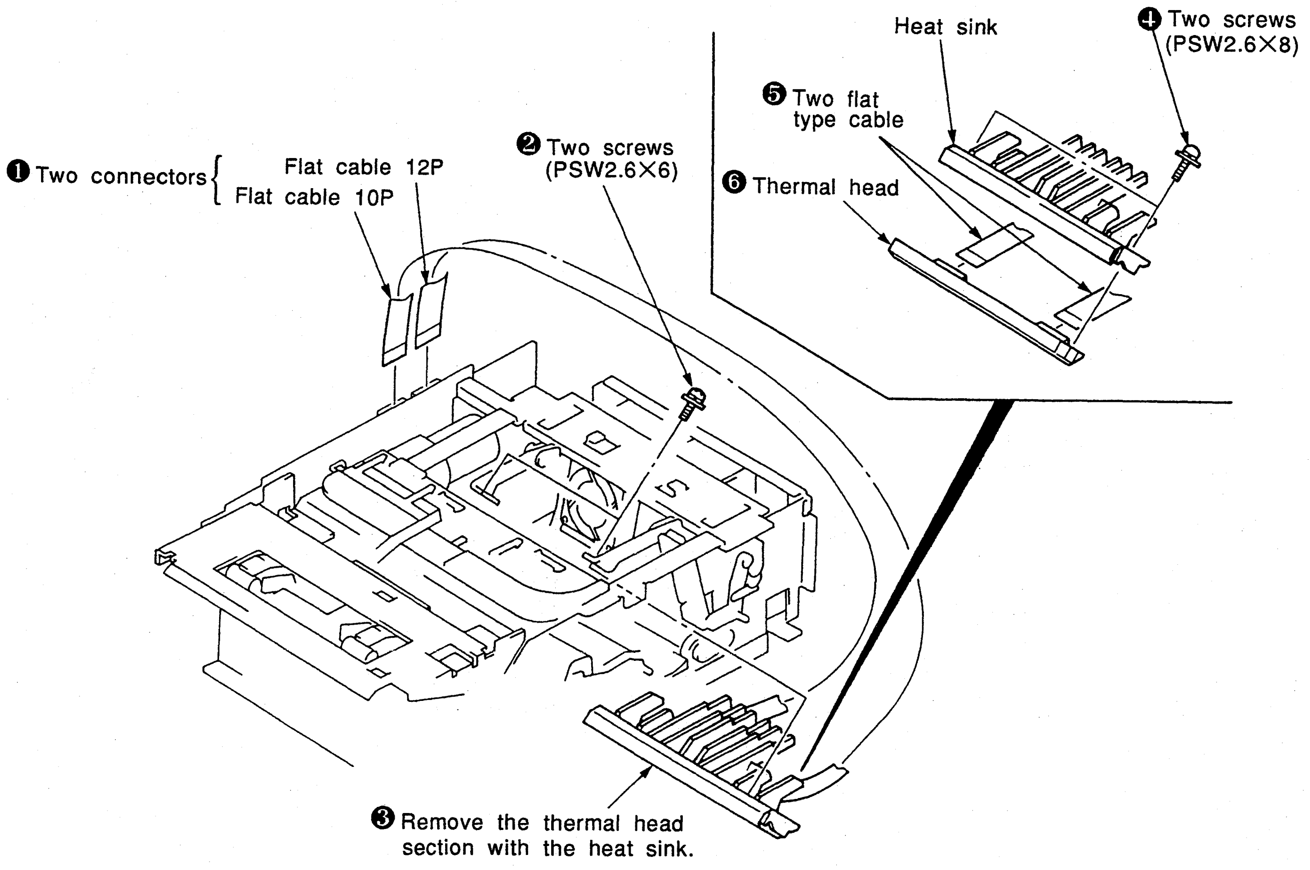
❷ Remove the paper feed assembly in arrow direction Ⓒ.

❸ Connector (CN801 3P)

2-17. REMOVAL OF HEAD ASSEMBLY AND HEAD POWER CAM BLOCK ASSEMBLY

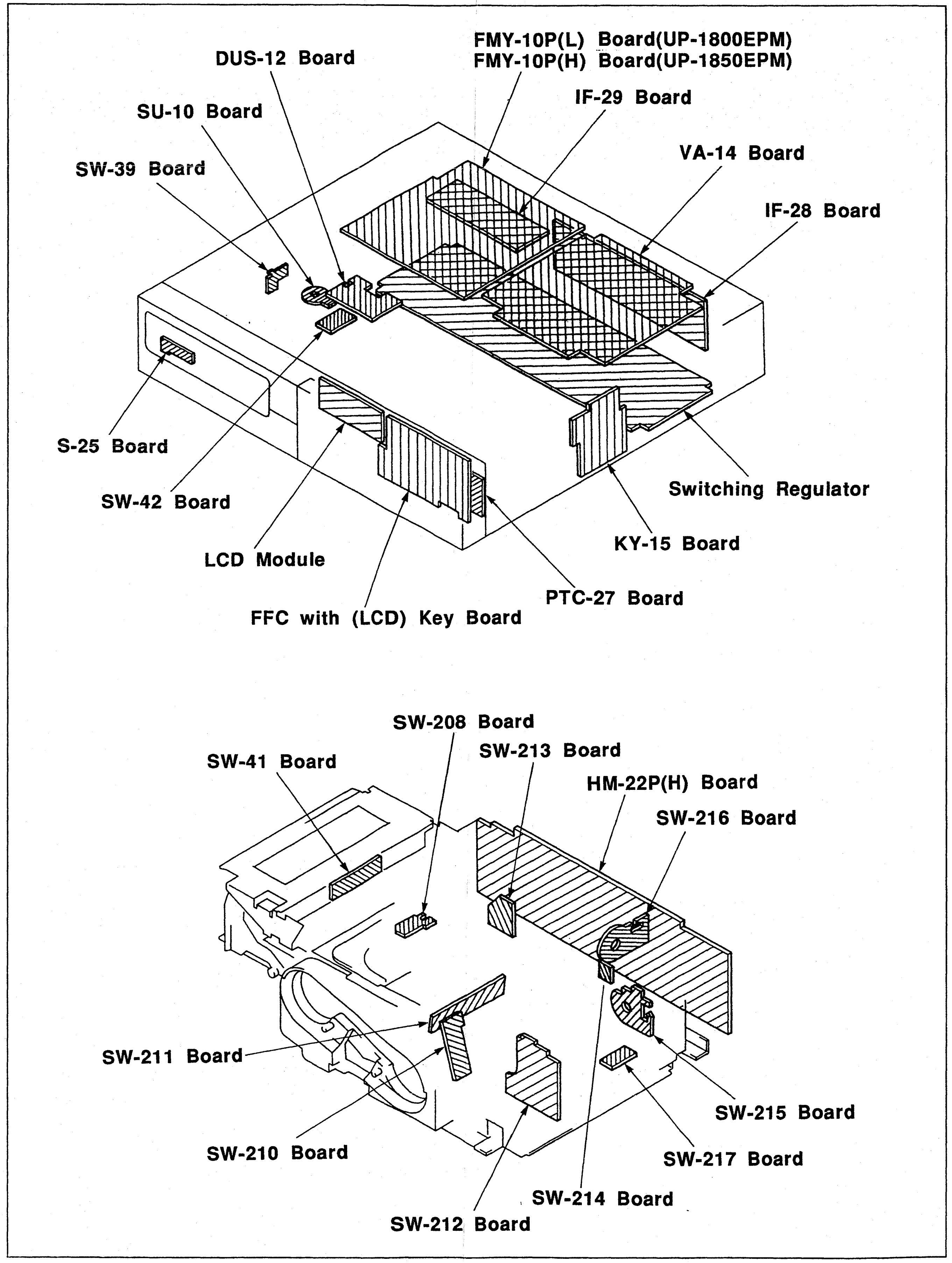

❼ Head assembly
❽ Head power cam block assembly
❻ Head arm shaft bearing (with SW-214 board)
❺ Screw(BVTT2.6×6)
❷ Cam shaft bearing
❸ Lock arm block assembly (with SW-210 board)
❶ Screw(BVTT2.6×6)
❹ Swing gear block assembly

2-18. REMOVAL OF THERMAL HEAD


Heat sink
❹ Two screws (PSW2.6×8)
❺ Two flat type cable
❻ Thermal head
❶ Two connectors { Flat cable 12P / Flat cable 10P
❷ Two screws (PSW2.6×6)
❸ Remove the thermal head section with the heat sink.

SECTION 3
DIAGRAMS

3-1. CIRCUIT BOARDS LOCATION


DUS-12 Board
FMY-10P(L) Board(UP-1800EPM)
FMY-10P(H) Board(UP-1850EPM)
IF-29 Board
SU-10 Board
VA-14 Board
SW-39 Board
IF-28 Board
S-25 Board
SW-42 Board
Switching Regulator
LCD Module
KY-15 Board
PTC-27 Board
FFC with (LCD) Key Board
SW-208 Board
SW-213 Board
SW-41 Board
HM-22P(H) Board
SW-216 Board
SW-211 Board
SW-215 Board
SW-210 Board
SW-217 Board
SW-214 Board
SW-212 Board

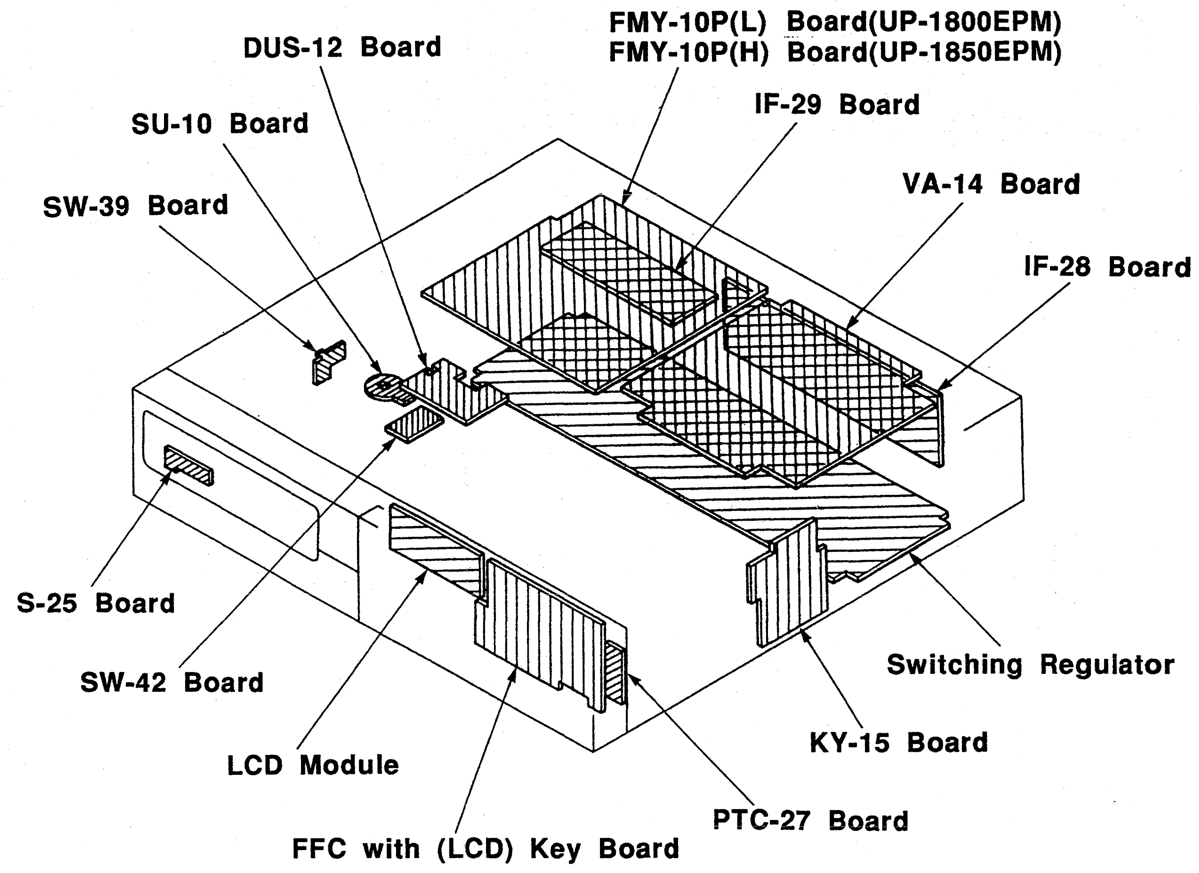
nbly

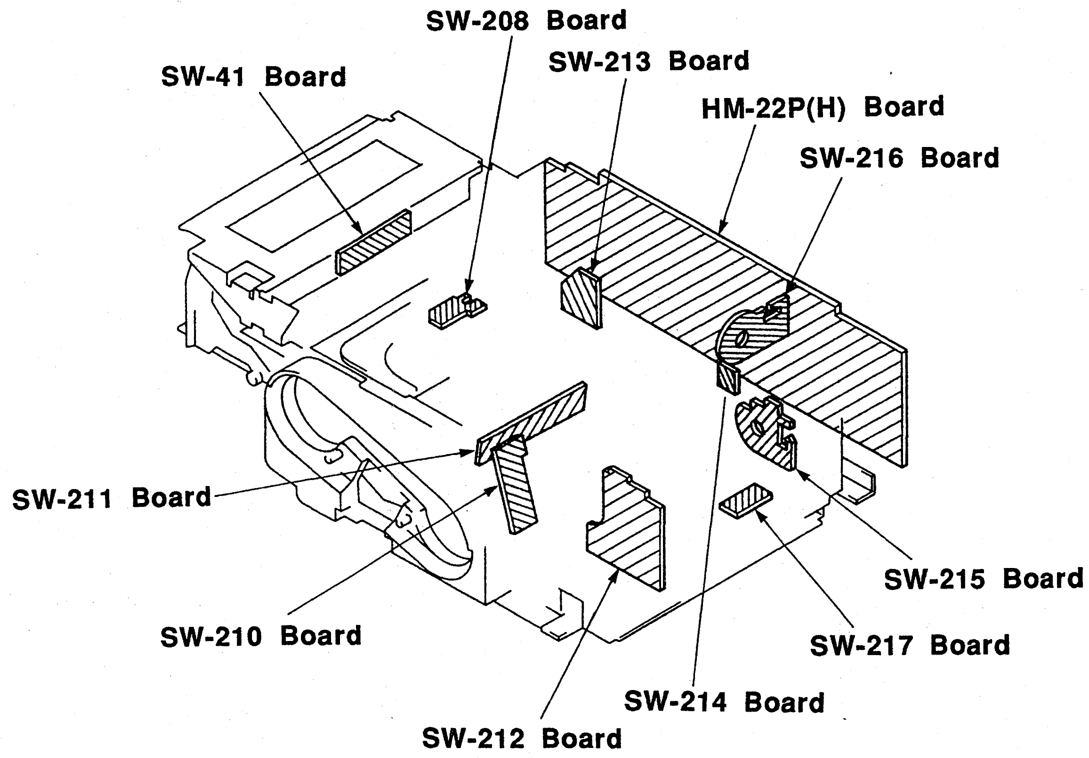
]

sembly
i)

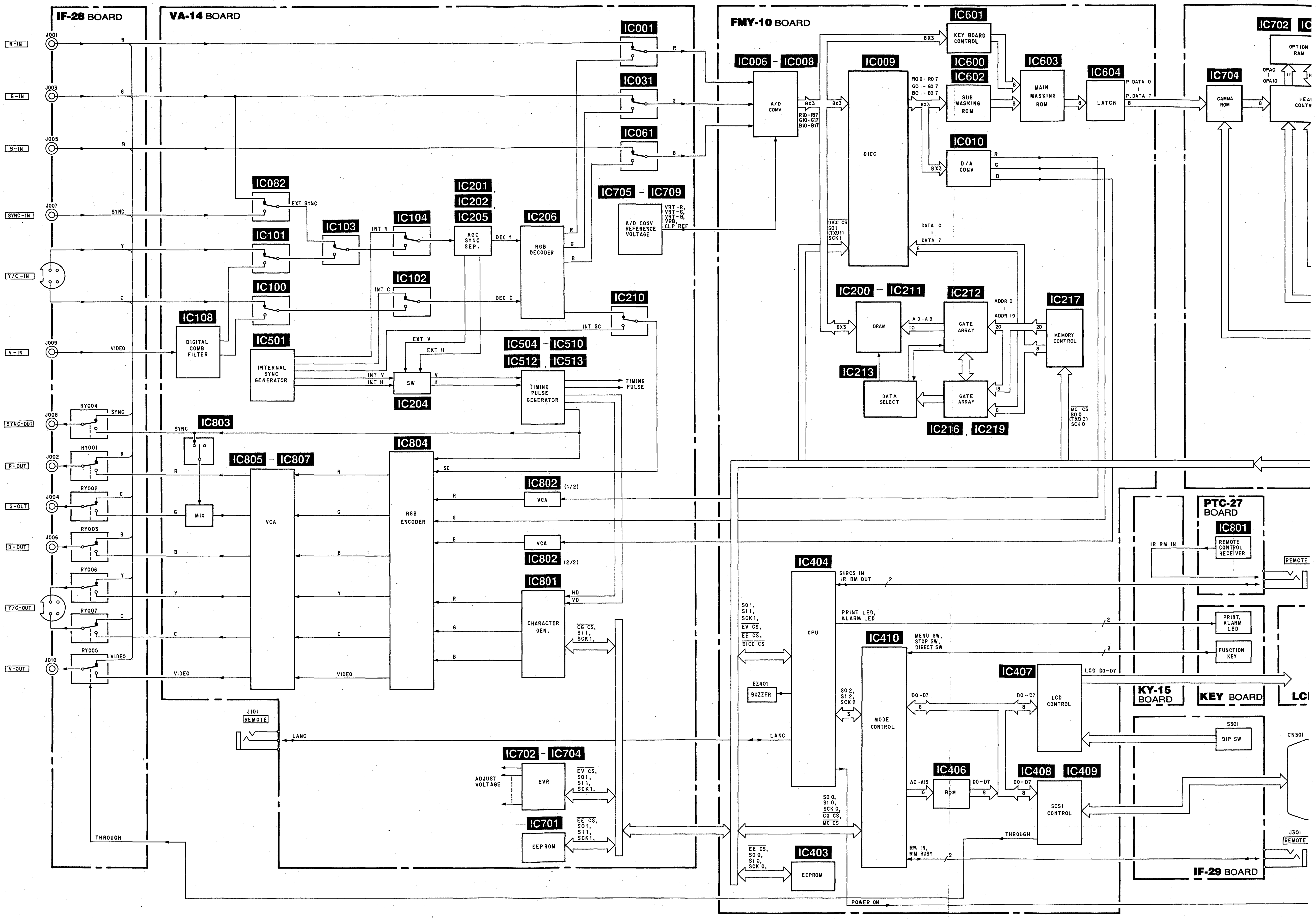
SECTION 3
DIAGRAMS

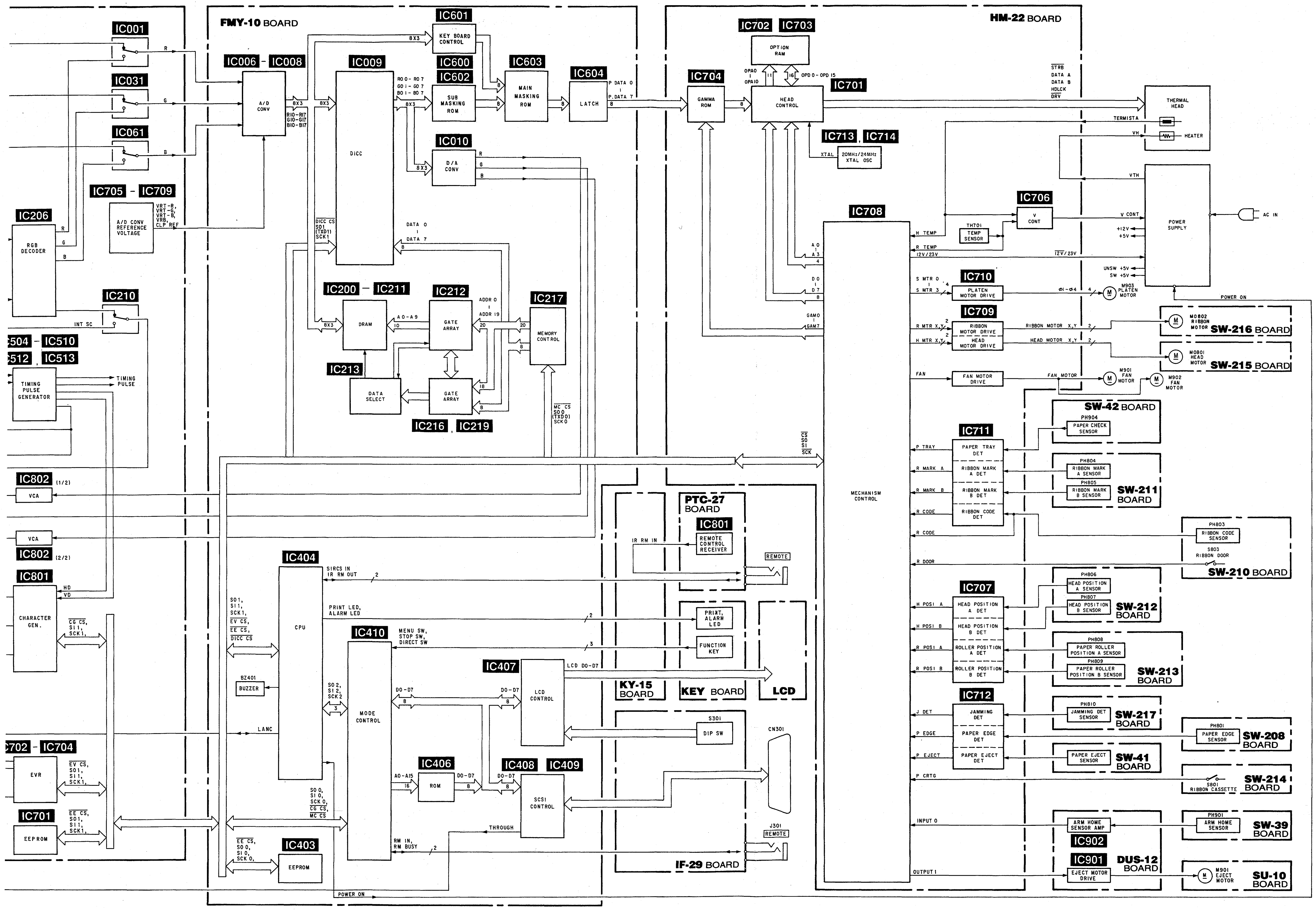
3-1. CIRCUIT BOARDS LOCATION


DUS-12 Board
FMY-10P(L) Board(UP-1800EPM)
FMY-10P(H) Board(UP-1850EPM)
IF-29 Board
SU-10 Board
VA-14 Board
SW-39 Board
IF-28 Board
S-25 Board
Switching Regulator
SW-42 Board
KY-15 Board
LCD Module
PTC-27 Board
FFC with (LCD) Key Board

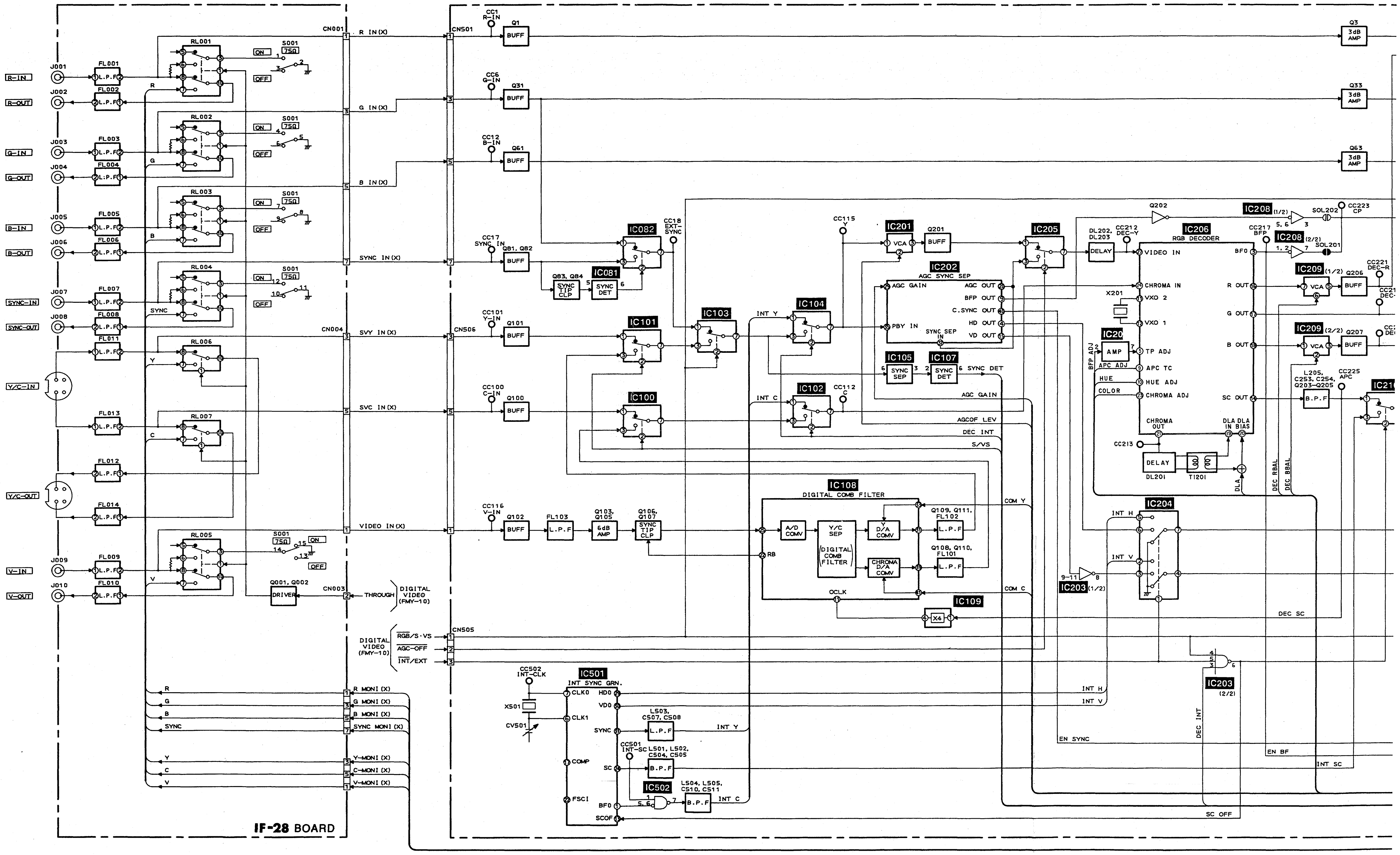

SW-208 Board
SW-213 Board
SW-41 Board
HM-22P(H) Board
SW-216 Board
SW-211 Board
SW-215 Board
SW-210 Board
SW-217 Board
SW-214 Board
SW-212 Board

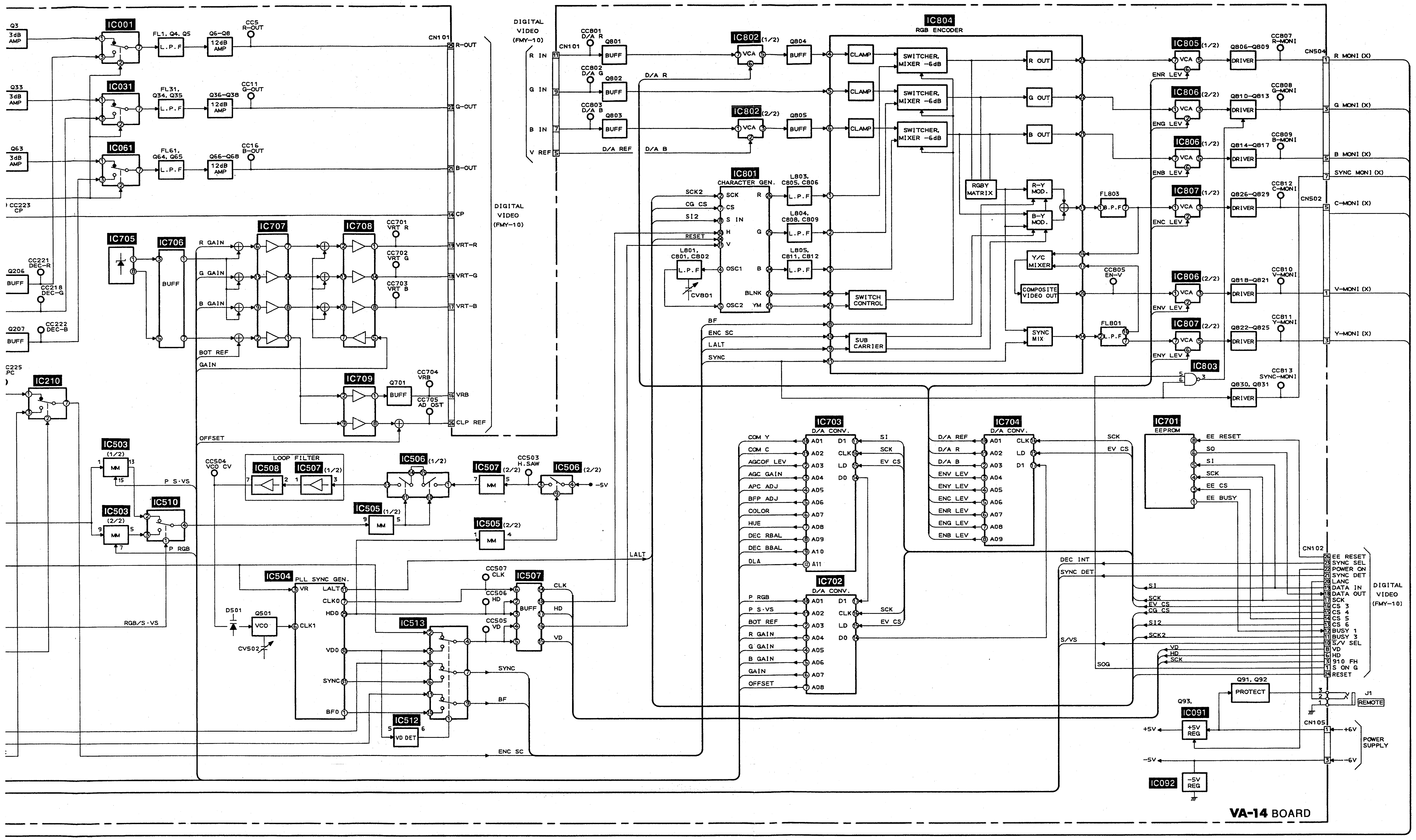
3-2. OVERALL BLOCK DIAGRAM


IF-28 BOARD
VA-14 BOARD
FMY-10 BOARD
R-IN
G-IN
B-IN
SYNC-IN
Y/C-IN
V-IN
SYNC-OUT
R-OUT
G-OUT
B-OUT
Y/C-OUT
V-OUT
J001
J003
J005
J007
J009
J008
J002
J004
J006
J010
RY004
RY001
RY002
RY003
RY006
RY007
RY005
THROUGH
IC001
IC031
IC061
IC082
EXT SYNC
IC101
IC100
IC103
IC104
IC102
INT Y
INT C
IC108
DIGITAL COMB FILTER
IC501
INTERNAL SYNC GENERATOR
IC201
IC202
IC205
AGC SYNC SEP.
DEC Y
DEC C
IC206
RGB DECODER
IC705 - IC709
A/D CONV REFERENCE VOLTAGE
VRT-R, VRT-G, VRT-B, VRB, CLP REF
IC210
INT SC
EXT V
EXT H
INT V
INT H
SW
IC204
IC504 - IC510
IC512 , IC513
TIMING PULSE GENERATOR
TIMING PULSE
IC803
SYNC
MIX
IC805 - IC807
VCA
IC804
RGB ENCODER
SC
IC802 (1/2)
IC802 (2/2)
IC801
CHARACTER GEN.
HD
VD
CG CS, SI 1, SCK1,
J101
REMOTE
LANC
IC702 - IC704
ADJUST VOLTAGE
EVR
EV CS, SO 1, SI 1, SCK1,
IC701
EEPROM
EE CS, SO 1, SI 1, SCK1,
VIDEO
IC006 - IC008
A/D CONV
8X3
R10-R17
G10-G17
B10-B17
IC009
DICC
RO 0 - RO 7
GO 1 - GO 7
BO 1 - BO 7
DICC CS
SO1
(TXD1)
SCK1
DATA 0
DATA 7
IC601
KEY BOARD CONTROL
IC600
IC602
SUB MASKING ROM
IC603
MAIN MASKING ROM
IC604
LATCH
P DATA 0
P DATA 7
IC010
D/A CONV
IC200 - IC211
DRAM
A0 - A9
IC212
GATE ARRAY
ADDR 0
ADDR 19
IC217
MEMORY CONTROL
IC213
DATA SELECT
IC216 , IC219
MC CS
SO 0
(TXD 0)
SCK 0
IC404
CPU
SIRCS IN
IR RM OUT
SO 1, SI 1, SCK1, EV CS, EE CS, DICC CS
PRINT LED, ALARM LED
BZ401
BUZZER
SO 2, SI 2, SCK 2
IC410
MODE CONTROL
MENU SW, STOP SW, DIRECT SW
SO 0, SI 0, SCK 0, CG CS, MC CS
EE CS, SO 0, SI 0, SCK 0,
IC403
EEPROM
IC407
LCD CONTROL
LCD D0-D7
D0-D7
IC406
ROM
A0-A15
IC408
IC409
SCSI CONTROL
RM IN, RM BUSY
POWER ON
IC702
IC704
OPTION RAM
OPA0
OPA10
GAMMA ROM
HEAD CONTR
PTC-27 BOARD
IC801
REMOTE CONTROL RECEIVER
IR RM IN
REMOTE
PRINT, ALARM LED
FUNCTION KEY
KY-15 BOARD
KEY BOARD
LC
S301
DIP SW
CN301
J301
REMOTE
IF-29 BOARD

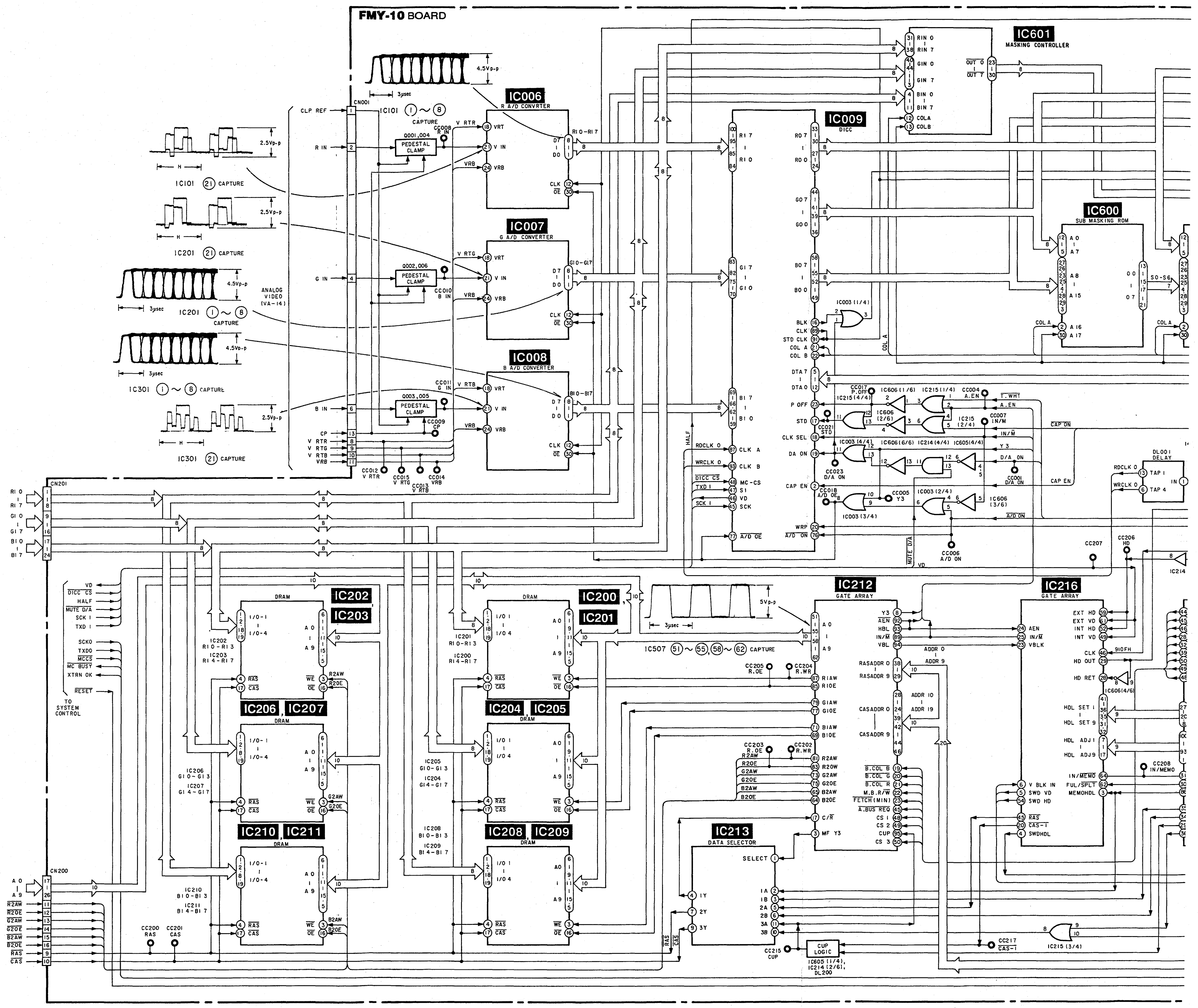

FMY-10 BOARD
HM-22 BOARD
IC001
IC031
IC061
IC206
RGB DECODER
IC705 - IC709
A/D CONV REFERENCE VOLTAGE
VRT-R, VRT-G, VRT-B, VRB, CLP REF
IC006 - IC008
A/D CONV
8X3
RI0-RI7 GI0-GI7 BI0-BI7
IC009
DICC
IC601
KEY BOARD CONTROL
IC600
IC602
SUB MASKING ROM
IC603
MAIN MASKING ROM
IC604
LATCH
P DATA 0 ~ P DATA 7
IC010
D/A CONV
R0 0 - R0 7
G0 1 - G0 7
B0 1 - B0 7
DICC CS
SO1 (TXD1)
SCK1
DATA 0 ~ DATA 7
IC200 - IC211
DRAM
IC212
GATE ARRAY
A0 - A9
ADDR 0 ~ ADDR 19
IC217
MEMORY CONTROL
IC213
DATA SELECT
GATE ARRAY
IC216 , IC219
MC CS
SO0 (TXD0)
SCK0
IC210
INT SC
IC504 - IC510
IC512 , IC513
TIMING PULSE GENERATOR
TIMING PULSE
IC802 (1/2)
VCA
VCA
IC802 (2/2)
IC801
CHARACTER GEN.
HD
VD
CG CS, SI1, SCK1
IC702 - IC704
EVR
EV CS, SO1, SI1, SCK1
IC701
EEPROM
EE CS, SO1, SI1, SCK1
IC404
CPU
SIRCS IN
IR RM OUT
PRINT LED, ALARM LED
SO1, SI1, SCK1, EV CS, EE CS, DICC CS
BZ401
BUZZER
LANC
IC410
MODE CONTROL
MENU SW, STOP SW, DIRECT SW
SO2, SI2, SCK2
SO0, SI0, SCK0, CG CS, MC CS
EE CS, SO0, SI0, SCK0
IC403
EEPROM
POWER ON
IC407
LCD CONTROL
LCD D0-D7
D0-D7
IC406
ROM
A0-A15
IC408
IC409
SCSI CONTROL
THROUGH
RM IN, RM BUSY
PTC-27 BOARD
IC801
REMOTE CONTROL RECEIVER
IR RM IN
REMOTE
PRINT, ALARM LED
FUNCTION KEY
KY-15 BOARD
KEY BOARD
LCD
S301
DIP SW
CN301
J301
REMOTE
IF-29 BOARD
IC702
IC703
OPTION RAM
OPA0 ~ OPA10
OPD0 - OPD15
IC704
GAMMA ROM
IC701
HEAD CONTROL
IC713 , IC714
XTAL
20MHz/24MHz XTAL OSC
A0 ~ A3
D0 ~ D7
GAM0 ~ GAM7
CS SO SI SCK
IC708
MECHANISM CONTROL
STRB
DATA A
DATA B
HDLCK
DRV
THERMAL HEAD
TERMISTA
VH
HEATER
VTH
POWER SUPPLY
AC IN
IC706
V CONT
V CONT
+12V
+5V
TH701
TEMP SENSOR
H TEMP
R TEMP
12V/23V
UNSW +5V
SW +5V
POWER ON
IC710
S MTR 0 ~ S MTR 3
PLATEN MOTOR DRIVE
φ1-φ4
M903 PLATEN MOTOR
IC709
R MTR X,Y
RIBBON MOTOR DRIVE
RIBBON MOTOR X,Y
M0802 RIBBON MOTOR
SW-216 BOARD
H MTR X,Y
HEAD MOTOR DRIVE
HEAD MOTOR X,Y
M0801 HEAD MOTOR
SW-215 BOARD
FAN
FAN MOTOR DRIVE
FAN MOTOR
M901 FAN MOTOR
M902 FAN MOTOR
SW-42 BOARD
PH904
PAPER CHECK SENSOR
IC711
P TRAY
PAPER TRAY DET
R MARK A
RIBBON MARK A DET
R MARK B
RIBBON MARK B DET
R CODE
RIBBON CODE DET
PH804
RIBBON MARK A SENSOR
PH805
RIBBON MARK B SENSOR
SW-211 BOARD
R CODE
PH803
RIBBON CODE SENSOR
S803
RIBBON DOOR
R DOOR
SW-210 BOARD
IC707
H POSI A
HEAD POSITION A DET
H POSI B
HEAD POSITION B DET
PH806
HEAD POSITION A SENSOR
PH807
HEAD POSITION B SENSOR
SW-212 BOARD
R POSI A
ROLLER POSITION A DET
R POSI B
ROLLER POSITION B DET
PH808
PAPER ROLLER POSITION A SENSOR
PH809
PAPER ROLLER POSITION B SENSOR
SW-213 BOARD
IC712
J DET
JAMMING DET
PH810
JAMMING DET SENSOR
SW-217 BOARD
P EDGE
PAPER EDGE DET
PH801
PAPER EDGE SENSOR
SW-208 BOARD
P EJECT
PAPER EJECT DET
PAPER EJECT SENSOR
SW-41 BOARD
P CRTG
S801
RIBBON CASSETTE
SW-214 BOARD
INPUT 0
ARM HOME SENSOR AMP
IC902
PH901
ARM HOME SENSOR
SW-39 BOARD
OUTPUT 1
IC901
EJECT MOTOR DRIVE
DUS-12 BOARD
M901 EJECT MOTOR
SU-10 BOARD

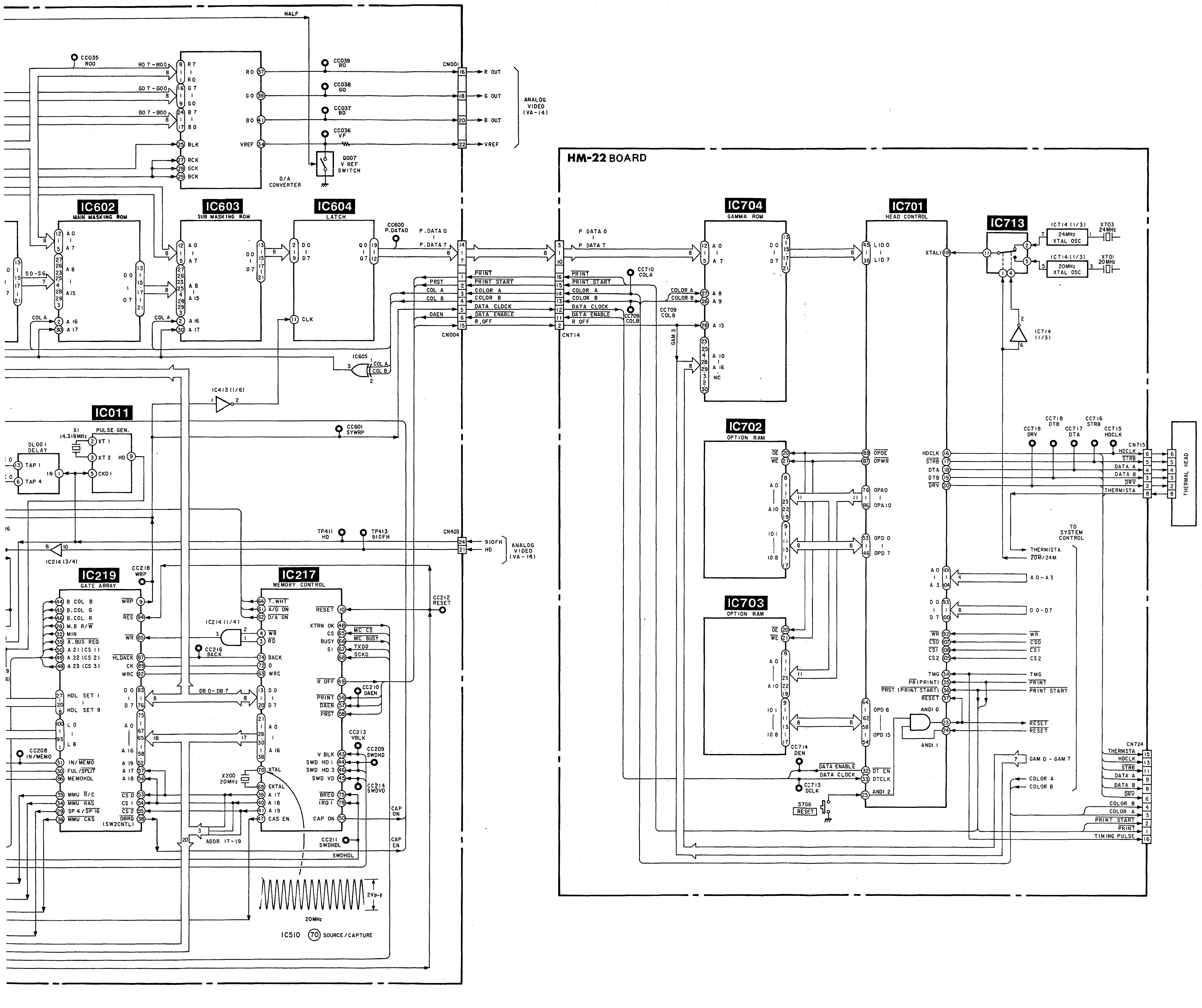
3-3. ANALOG BLOCK DIAGRAM


R-IN
R-OUT
G-IN
G-OUT
B-IN
B-OUT
SYNC-IN
SYNC-OUT
Y/C-IN
Y/C-OUT
V-IN
V-OUT
J001
J002
J003
J004
J005
J006
J007
J008
J009
J010
FL001
FL002
FL003
FL004
FL005
FL006
FL007
FL008
FL009
FL010
FL011
FL012
FL013
FL014
L.P.F
RL001
RL002
RL003
RL004
RL005
RL006
RL007
S001
ON
OFF
75Ω
DRIVER
Q001, Q002
IF-28 BOARD
CN001
CN003
CN004
R IN (X)
G IN (X)
B IN (X)
SYNC IN (X)
SVY IN (X)
SVC IN (X)
VIDEO IN (X)
THROUGH
DIGITAL VIDEO (FMY-10)
RGB/S·VS
AGC-OFF
INT/EXT
R MONI (X)
G MONI (X)
B MONI (X)
SYNC MONI (X)
Y-MONI (X)
C-MONI (X)
V-MONI (X)
CN501
CN505
CN506
CC1 R-IN
CC6 G-IN
CC12 B-IN
CC17 SYNC IN
CC101 Y-IN
CC100 C-IN
CC116 V-IN
Q1
Q31
Q61
Q81, Q82
Q83, Q84
Q101
Q100
Q102
BUFF
SYNC TIP CLP
SYNC DET
IC081
IC082
IC100
IC101
IC102
IC103
IC104
CC18 EXT-SYNC
CC112 C
INT Y
INT C
FL103
L.P.F
Q103, Q105
6dB AMP
Q106, Q107
SYNC TIP CLP
IC108
DIGITAL COMB FILTER
A/D CONV
Y/C SEP
(DIGITAL COMB FILTER)
Y D/A CONV
CHROMA D/A CONV
RB
OCLK
Q109, Q111, FL102
Q108, Q110, FL101
L.P.F
IC109
X4
CC115 Y
IC201
VCA
Q201
IC202
AGC SYNC SEP
AGC GAIN
PBY IN
SYNC SEP IN
AGC OUT
BFP OUT
C.SYNC OUT
HD OUT
VD OUT
IC105
SYNC SEP
IC107
SYNC DET
SYNC DET
AGC GAIN
AGCOF LEV
DEC INT
S/VS
IC205
DL202, DL203
DELAY
CC212 DEC-Y
Q202
IC206
RGB DECODER
VIDEO IN
CHROMA IN
VXO 2
VXO 1
TP ADJ
APC TC
HUE ADJ
CHROMA ADJ
CHROMA OUT
DLA DLA IN BIAS
BFO
R OUT
G OUT
B OUT
SC OUT
X201
IC20
AMP
BFP ADJ
APC ADJ
HUE
COLOR
CC213
DELAY
DL201
T1201
DLA
DEC RBAL
DEC BBAL
IC208 (1/2)
IC208 (2/2)
CC217 BFP
SOL202
SOL201
CC223 CP
IC209 (1/2)
IC209 (2/2)
VCA
Q206
Q207
CC221 DEC-R
L205, C253, C254, Q203–Q205
CC225 APC
B.P.F
Q3
Q33
Q63
3dB AMP
COM Y
COM C
IC204
INT H
INT V
9–11
IC203 (1/2)
IC203 (2/2)
DEC SC
DEC INT
EN SYNC
EN BF
INT SC
SC OFF
CC502 INT-CLK
X501
CV501
IC501
INT SYNC GRN.
CLK0
CLK1
COMP
FSCI
HD0
VD0
SYNC
SC
BF0
SCOF
L503, C507, C508
L.P.F
CC501 INT-SC
L501, L502, C504, C505
B.P.F
IC502
L504, L505, C510, C511
B.P.F
INT Y
INT C

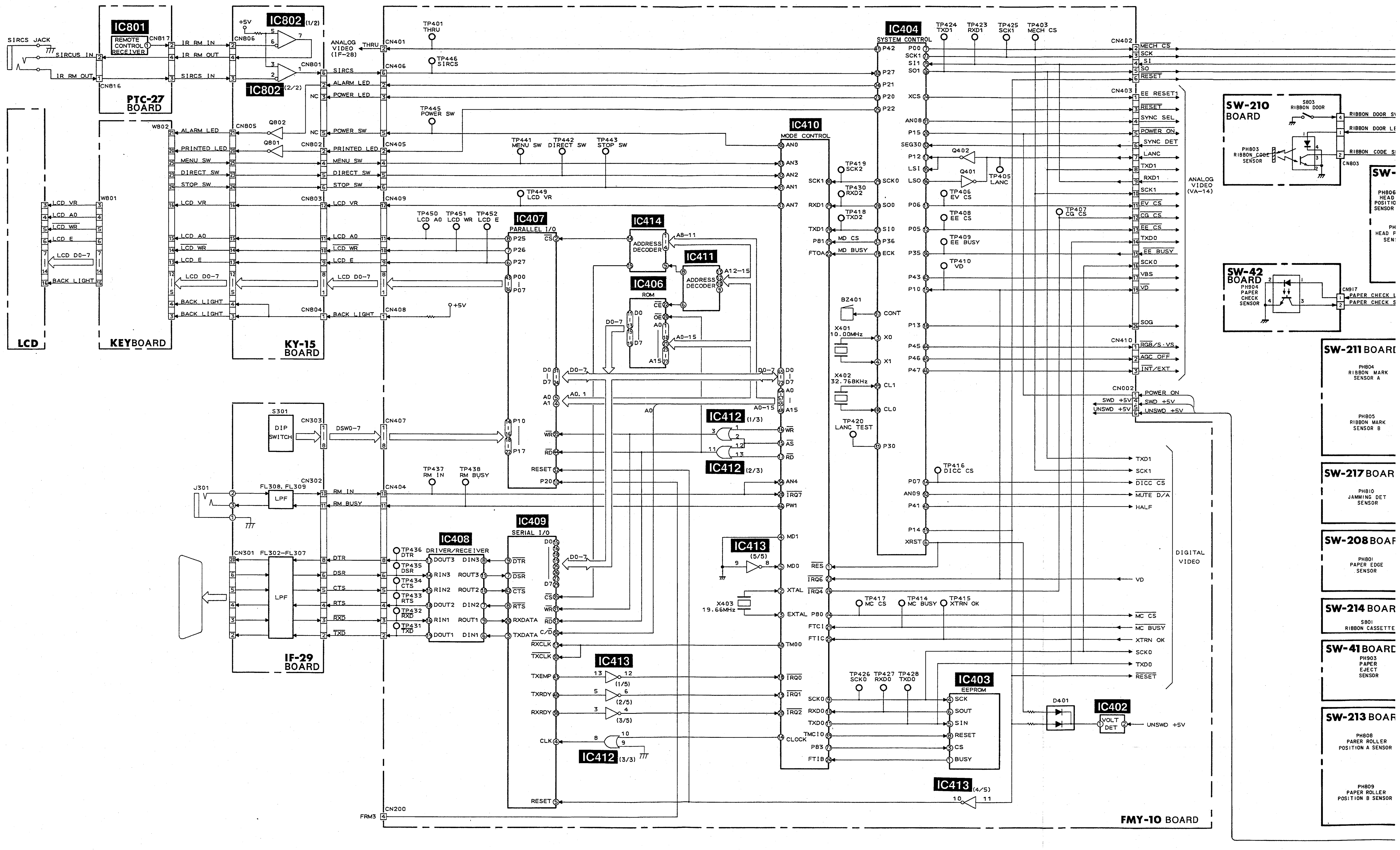

IC001
IC031
IC061
Q3 3dB AMP
Q33 3dB AMP
Q63 3dB AMP
FL1, Q4, Q5 L.P.F
FL31, Q34, Q35 L.P.F
FL61, Q64, Q65 L.P.F
Q6–Q8 12dB AMP
Q36–Q38 12dB AMP
Q66–Q68 12dB AMP
CC5 R-OUT
CC11 G-OUT
CC16 B-OUT
CN101
R-OUT
G-OUT
B-OUT
CP
VRT-R
VRT-G
VRT-B
VRB
CLP REF
CC223 CP
CC221 DEC-R
CC218 DEC-G
CC222 DEC-B
Q206 BUFF
Q207 BUFF
IC705
IC706 BUFF
IC707
IC708
IC709
R GAIN
G GAIN
B GAIN
BOT REF
GAIN
OFFSET
CC701 VRT R
CC702 VRT G
CC703 VRT B
CC704 VRB
CC705 AD OST
Q701 BUFF
CC225 PC
IC210
IC503 (1/2) MM
IC503 (2/2) MM
IC510
P S·VS
P RGB
RGB/S·VS
CC504 VCO CV
LOOP FILTER
IC508
IC507 (1/2)
IC506 (1/2)
IC507 (2/2) MM
CC503 H.SAW
IC506 (2/2)
−5V
IC505 (1/2) MM
IC505 (2/2) MM
LALT
IC504 PLL SYNC GEN.
VR
LALT
CLK0
HD0
VD0
SYNC
BF0
CLK1
D501
Q501 VCO
CV502
IC513
IC512 VD DET
CC507 CLK
CC506 HD
CC505 VD
IC507 BUFF
CLK
HD
VD
SYNC
BF
ENC SC
DIGITAL VIDEO (FMY-10)
CN101
R IN
G IN
B IN
V REF
CC801 D/A R
CC802 D/A G
CC803 D/A B
Q801 BUFF
Q802 BUFF
Q803 BUFF
D/A R
D/A REF
D/A B
IC802 (1/2) VCA
IC802 (2/2) VCA
Q804 BUFF
Q805 BUFF
IC804 RGB ENCODER
CLAMP
SWITCHER, MIXER −6dB
R OUT
G OUT
B OUT
RGBY MATRIX
R−Y MOD.
B−Y MOD.
Y/C MIXER
COMPOSITE VIDEO OUT
SWITCH CONTROL
SUB CARRIER
SYNC MIX
IC801 CHARACTER GEN.
SCK2
CG CS
S12
RESET
SCK
CS
S IN
H
V
OSC1
OSC2
BLNK
YM
L801, C801, C802 L.P.F
CV801
L803, C805, C806 L.P.F
L804, C808, C809 L.P.F
L805, C811, C812 L.P.F
BF
ENC SC
LALT
SYNC
FL803 B.P.F
FL801 L.P.F
CC805 EN-V
IC805 (1/2) VCA
IC806 (2/2) VCA
IC806 (1/2) VCA
IC807 (1/2) VCA
IC806 (2/2) VCA
IC807 (2/2) VCA
IC803
ENR LEV
ENG LEV
ENB LEV
ENC LEV
ENV LEV
ENY LEV
Q806–Q809 DRIVER
Q810–Q813 DRIVER
Q814–Q817 DRIVER
Q826–Q829 DRIVER
Q818–Q821 DRIVER
Q822–Q825 DRIVER
Q830, Q831 DRIVER
CC807 R-MONI
CC808 G-MONI
CC809 B-MONI
CC812 C-MONI
CC810 V-MONI
CC811 Y-MONI
CC813 SYNC-MONI
CN504
CN502
R MONI (X)
G MONI (X)
B MONI (X)
SYNC MONI (X)
C-MONI (X)
V-MONI (X)
Y-MONI (X)
IC703 D/A CONV.
COM Y
COM C
AGCOF LEV
AGC GAIN
APC ADJ
BFP ADJ
COLOR
HUE
DEC RBAL
DEC BBAL
DLA
A01 A02 A03 A04 A05 A06 A07 A08 A09 A10 A11
D1 CLK LD D0
SI
SCK
EV CS
IC702 D/A CONV.
P RGB
P S·VS
BOT REF
R GAIN
G GAIN
B GAIN
GAIN
OFFSET
IC704 D/A CONV.
D/A REF
D/A R
D/A B
ENV LEV
ENY LEV
ENC LEV
ENR LEV
ENG LEV
ENB LEV
IC701 EEPROM
EE RESET
SO
SI
SCK
EE CS
EE BUSY
CN102
DEC INT
SYNC DET
S/VS
SOG
SCK2
S12
CG CS
EV CS
EE RESET
SYNC SEL
POWER ON
SYNC DET
LANC
DATA IN
DATA OUT
SCK
CS 3
CS 4
CG CS
CS 5
CS 6
BUSY 1
BUSY 3
S/V SEL
VD
HD
910 FH
S ON G
RESET
DIGITAL VIDEO (FMY-10)
Q91, Q92 PROTECT
J1 REMOTE
Q93, IC091 +5V REG
IC092 −5V REG
CN105
+5V
−5V
+6V
−6V
POWER SUPPLY
VA-14 BOARD

3-4. DIGITAL BLOCK DIAGRAM

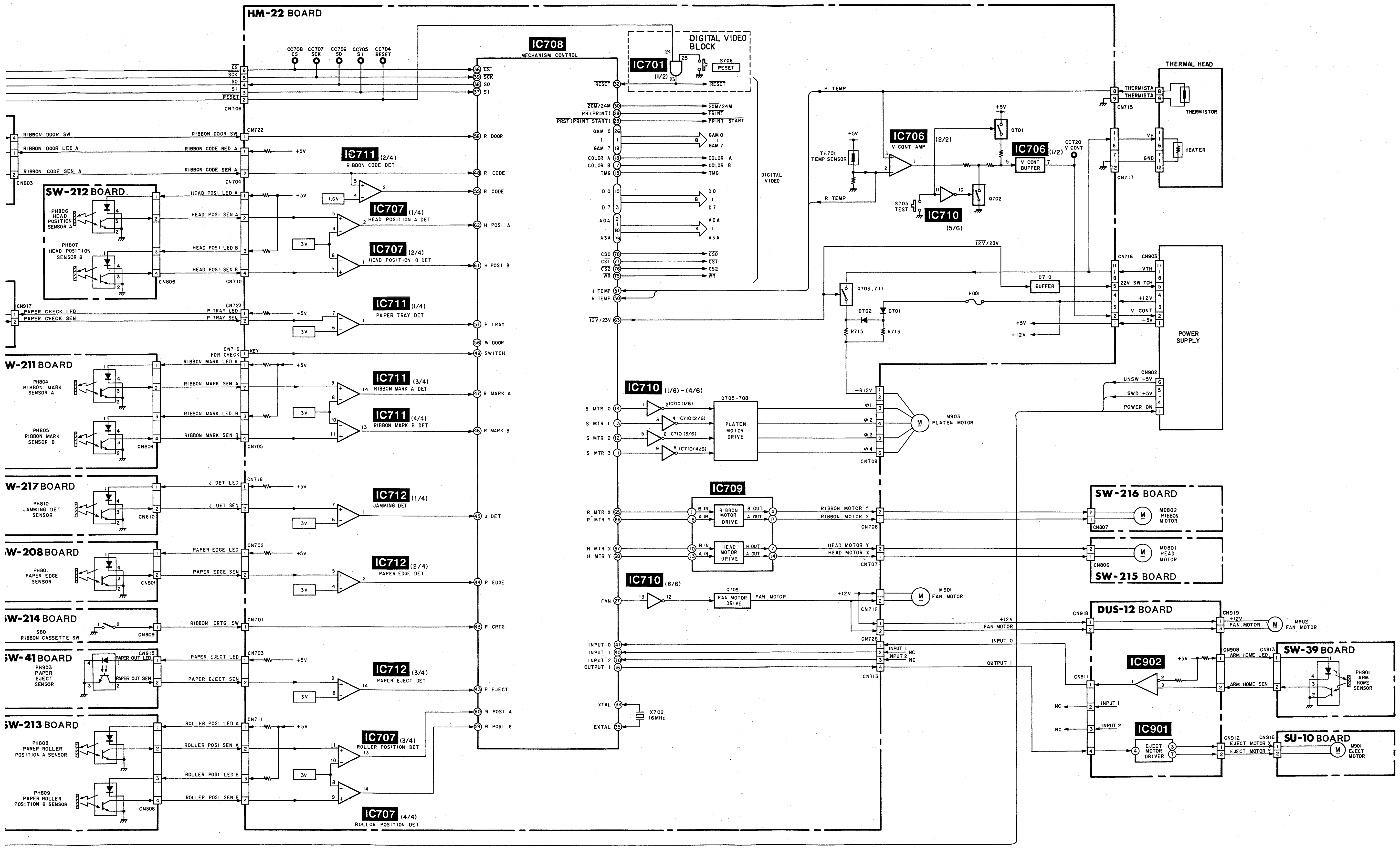

FMY-10 BOARD
CN001
CLP REF
R IN
G IN
B IN
PEDESTAL CLAMP
Q001,004
Q002,006
Q003,005
IC006
R A/D CONVRTER
IC007
G A/D CONVERTER
IC008
B A/D CONVERTER
IC009
DICC
IC601
MASKING CONTROLLER
IC600
SUB MASKING ROM
ANALOG VIDEO (VA-14)
IC101 ㉑ CAPTURE
IC201 ㉑ CAPTURE
IC301 ㉑ CAPTURE
IC101 ①~⑧ CAPTURE
IC201 ①~⑧ CAPTURE
IC301 ①~⑧ CAPTURE
2.5Vp-p
4.5Vp-p
3μsec
CN201
RI 0 ~ RI 7
GI 0 ~ GI 7
BI 0 ~ BI 7
IC202
IC203
DRAM
IC206, IC207
IC210, IC211
IC200
IC201
IC204, IC205
IC208, IC209
IC212
GATE ARRAY
IC216
GATE ARRAY
IC213
DATA SELECTOR
CUP LOGIC
DL001 DELAY
IC507 (51)~(55),(58)~(62) CAPTURE
5Vp-p
CN200
A 0 ~ A 9
R2AW
R2OE
G2AW
G2OE
B2AW
B2OE
RAS
CAS
TO SYSTEM CONTROL
VD
DICC CS
HALF
MUTE D/A
SCK I
TXD I
SCKO
TXDO
MCCS
MC BUSY
XTRN OK
RESET


HM-22 BOARD
IC602 MAIN MASKING ROM
IC603 SUB MASKING ROM
IC604 LATCH
IC011 PULSE GEN.
IC219 GATE ARRAY
IC217 MEMORY CONTROL
IC704 GAMMA ROM
IC701 HEAD CONTROL
IC713
IC702 OPTION RAM
IC703 OPTION RAM
D/A CONVERTER
Q007 V REF SWITCH
HALF
R OUT
G OUT
B OUT
VREF
ANALOG VIDEO (VA-14)
CN001
CN004
CN714
CN403
CN715
CN724
THERMAL HEAD
TO SYSTEM CONTROL
IC714 (1/3) 24MHz XTAL OSC
IC714 (1/3) 20MHz XTAL OSC
X703 24MHz
X701 20MHz
PRINT
PRINT START
COLOR A
COLOR B
DATA CLOCK
DATA ENABLE
R OFF
P.DATA 0
P.DATA 7
910FH
HD
DL001 DELAY
X1 14.318MHz
X200 20MHz
ADDR 17-19
20MHz
2Vp-p
IC510 (70) SOURCE/CAPTURE
S706 RESET
A0-A3
D0-D7
GAM 0 - GAM 7
THERMISTA
20M/24M
TIMING PULSE

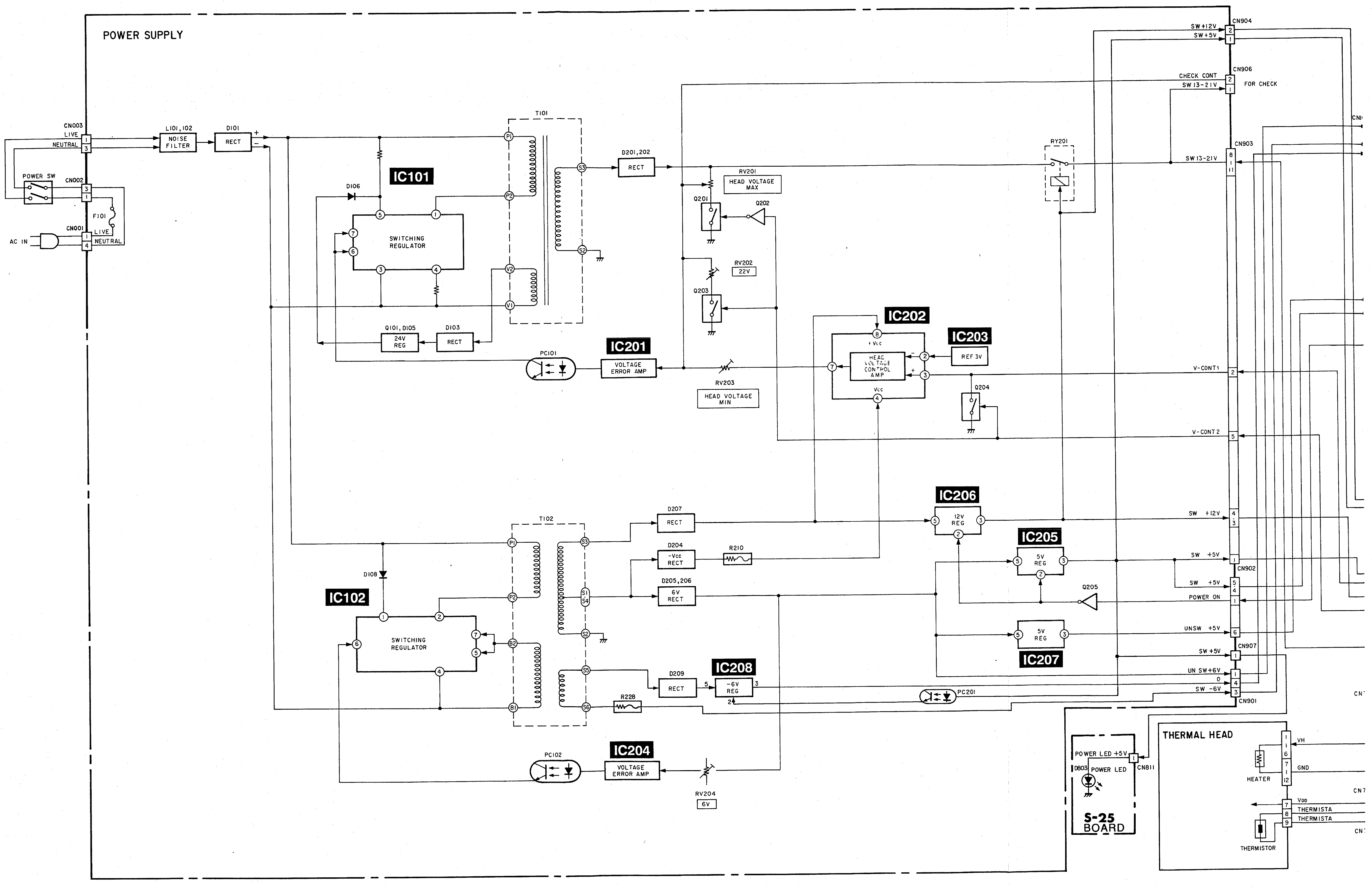
3-5. SYSTEM CONTROL BLOCK DIAGRAM

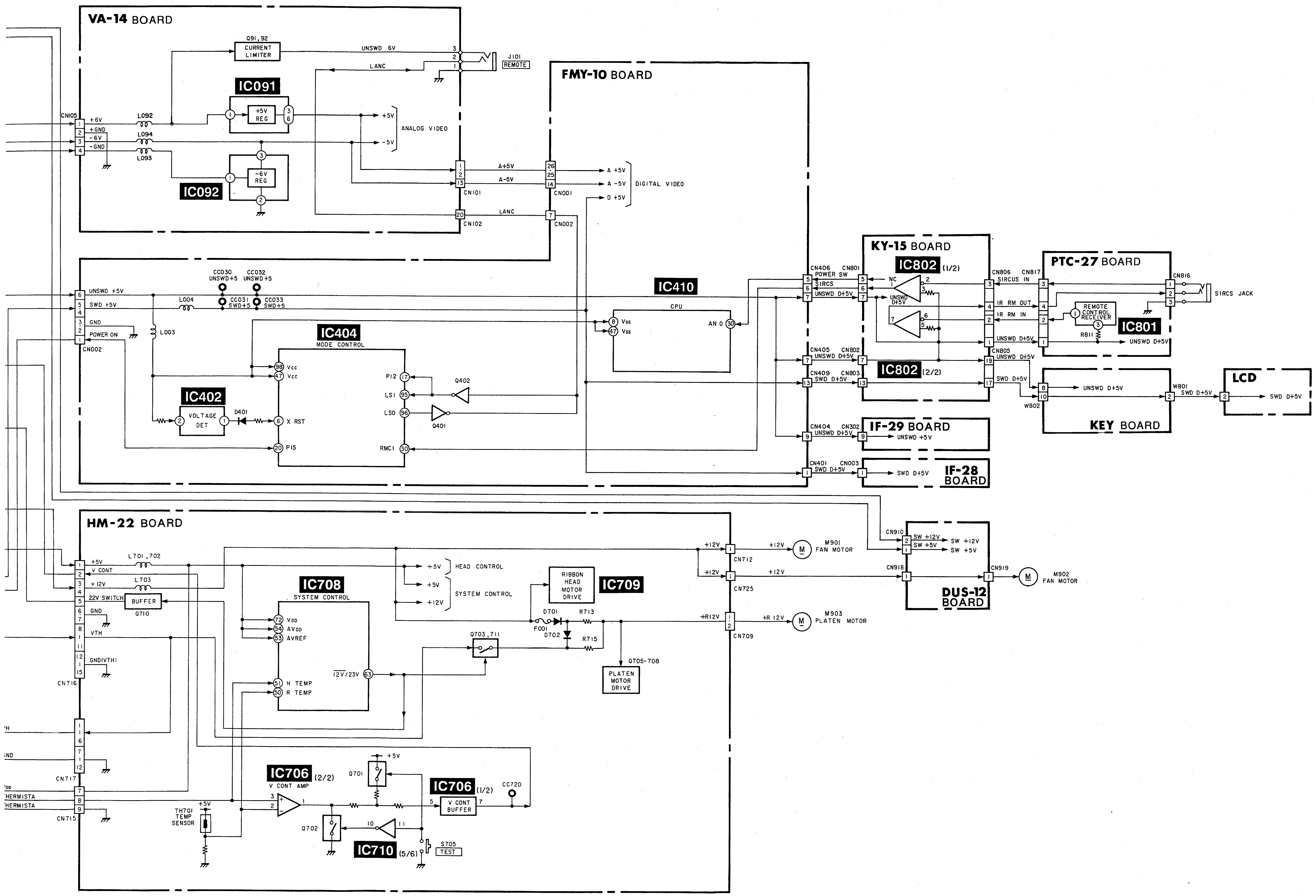


IC801
REMOTE CONTROL RECEIVER
SIRCS JACK
PTC-27 BOARD
IC802 (1/2)
IC802 (2/2)
KY-15 BOARD
LCD
KEYBOARD
IC404
SYSTEM CONTROL
IC410
MODE CONTROL
IC407
PARALLEL I/O
IC414
ADDRESS DECODER
IC411
ADDRESS DECODER
IC406
ROM
IC412 (1/3)
IC412 (2/3)
IC412 (3/3)
IC413 (5/5)
IC413
IC413 (4/5)
IC409
SERIAL I/O
IC408
DRIVER/RECEIVER
IC403
EEPROM
IC402
VOLT DET
S301
DIP SWITCH
IF-29 BOARD
FMY-10 BOARD
SW-210 BOARD
SW-42 BOARD
SW-211 BOARD
SW-217 BOARD
SW-208 BOARD
SW-214 BOARD
SW-41 BOARD
SW-213 BOARD
ANALOG VIDEO (IF-28)
ANALOG VIDEO (VA-14)
DIGITAL VIDEO
X401 10.00MHz
X402 32.768KHz
X403 19.66MHz
BZ401
D401
UNSWD +5V


HM-22 BOARD
IC708
MECHANISM CONTROL
DIGITAL VIDEO BLOCK
IC701 (1/2)
S706 RESET
CC708 CS
CC707 SCK
CC706 SO
CC705 SI
CC704 RESET
CN706
RIBBON DOOR SW
RIBBON DOOR LED A
RIBBON CODE SEN A
RIBBON CODE RED A
CN803
CN722
CN704
SW-212 BOARD
PH806 HEAD POSITION SENSOR A
PH807 HEAD POSITION SENSOR B
HEAD POSI LED A
HEAD POSI SEN A
HEAD POSI LED B
HEAD POSI SEN B
CN806
CN710
IC711 (2/4) RIBBON CODE DET
IC707 (1/4) HEAD POSITION A DET
IC707 (2/4) HEAD POSITION B DET
IC711 (1/4) PAPER TRAY DET
CN917
PAPER CHECK LED
PAPER CHECK SEN
CN723
P TRAY LED
P TRAY SEN
CN719 FOR CHECK
KEY
SW-211 BOARD
PH804 RIBBON MARK SENSOR A
PH805 RIBBON MARK SENSOR B
RIBBON MARK LED A
RIBBON MARK SEN A
RIBBON MARK LED B
RIBBON MARK SEN B
CN804
CN705
IC711 (3/4) RIBBON MARK A DET
IC711 (4/4) RIBBON MARK B DET
SW-217 BOARD
PH810 JAMMING DET SENSOR
J DET LED
J DET SEN
CN810
CN718
IC712 (1/4) JAMMING DET
SW-208 BOARD
PH801 PAPER EDGE SENSOR
PAPER EDGE LED
PAPER EDGE SEN
CN801
CN702
IC712 (2/4) PAPER EDGE DET
SW-214 BOARD
S801 RIBBON CASSETTE SW
RIBBON CRTG SW
CN809
CN701
SW-41 BOARD
PH903 PAPER EJECT SENSOR
PAPER OUT LED
PAPER OUT SEN
CN915
CN703
PAPER EJECT LED
PAPER EJECT SEN
IC712 (3/4) PAPER EJECT DET
SW-213 BOARD
PH808 PARER ROLLER POSITION A SENSOR
PH809 PAPER ROLLER POSITION B SENSOR
ROLLER POSI LED A
ROLLER POSI SEN A
ROLLER POSI LED B
ROLLER POSI SEN B
CN808
CN711
IC707 (3/4) ROLLER POSITION DET
IC707 (4/4) ROLLOR POSITION DET
+5V
3V
1.6V
R DOOR
R CODE
H POSI A
H POSI B
P TRAY
W DOOR
SWITCH
R MARK A
R MARK B
J DET
P EDGE
P CRTG
P EJECT
R POSI A
R POSI B
RESET
20M/24M
RR (PRINT)
PRST (PRINT START)
GAM 0
GAM 7
COLOR A
COLOR B
TMG
D0
D7
A0A
A3A
CS0
CS1
CS2
WR
H TEMP
R TEMP
12V/23V
DIGITAL VIDEO
PRINT
PRINT START
IC710 (1/6)-(4/6)
S MTR 0
S MTR 1
S MTR 2
S MTR 3
Q705-708
PLATEN MOTOR DRIVE
CN709
M903 PLATEN MOTOR
IC709
R MTR X
R MTR Y
RIBBON MOTOR DRIVE
B IN
A IN
B OUT
A OUT
RIBBON MOTOR Y
RIBBON MOTOR X
CN708
H MTR X
H MTR Y
HEAD MOTOR DRIVE
HEAD MOTOR Y
HEAD MOTOR X
CN707
IC710 (6/6)
FAN
Q709 FAN MOTOR DRIVE
FAN MOTOR
+12V
CN712
M901 FAN MOTOR
CN725
INPUT 0
INPUT 1
INPUT 2
OUTPUT 1
NC
CN713
XTAL
EXTAL
X702 16MHz
THERMAL HEAD
THERMISTA
THERMISTOR
HEATER
CN715
CN717
VH
GND
TH701 TEMP SENSOR
IC706 (2/2) V CONT AMP
IC706 (1/2) V CONT BUFFER
CC720 V CONT
Q701
Q702
S705 TEST
IC710 (5/6)
CN716
CN903
VTH
22V SWITCH
V CONT
Q710 BUFFER
Q703,711
F001
D702
D701
R715
R713
POWER SUPPLY
CN902
UNSW +5V
SWD +5V
POWER ON
+R12V
SW-216 BOARD
M0802 RIBBON MOTOR
CN807
SW-215 BOARD
M0801 HEAD MOTOR
CN806
DUS-12 BOARD
CN918
CN919
M902 FAN MOTOR
CN908
CN913
ARM HOME LED
ARM HOME SEN
SW-39 BOARD
PH901 ARM HOME SENSOR
IC902
CN911
INPUT 1
INPUT 2
IC901
EJECT MOTOR DRIVER
CN912
CN916
EJECT MOTOR X
EJECT MOTOR Y
SU-10 BOARD
M901 EJECT MOTOR

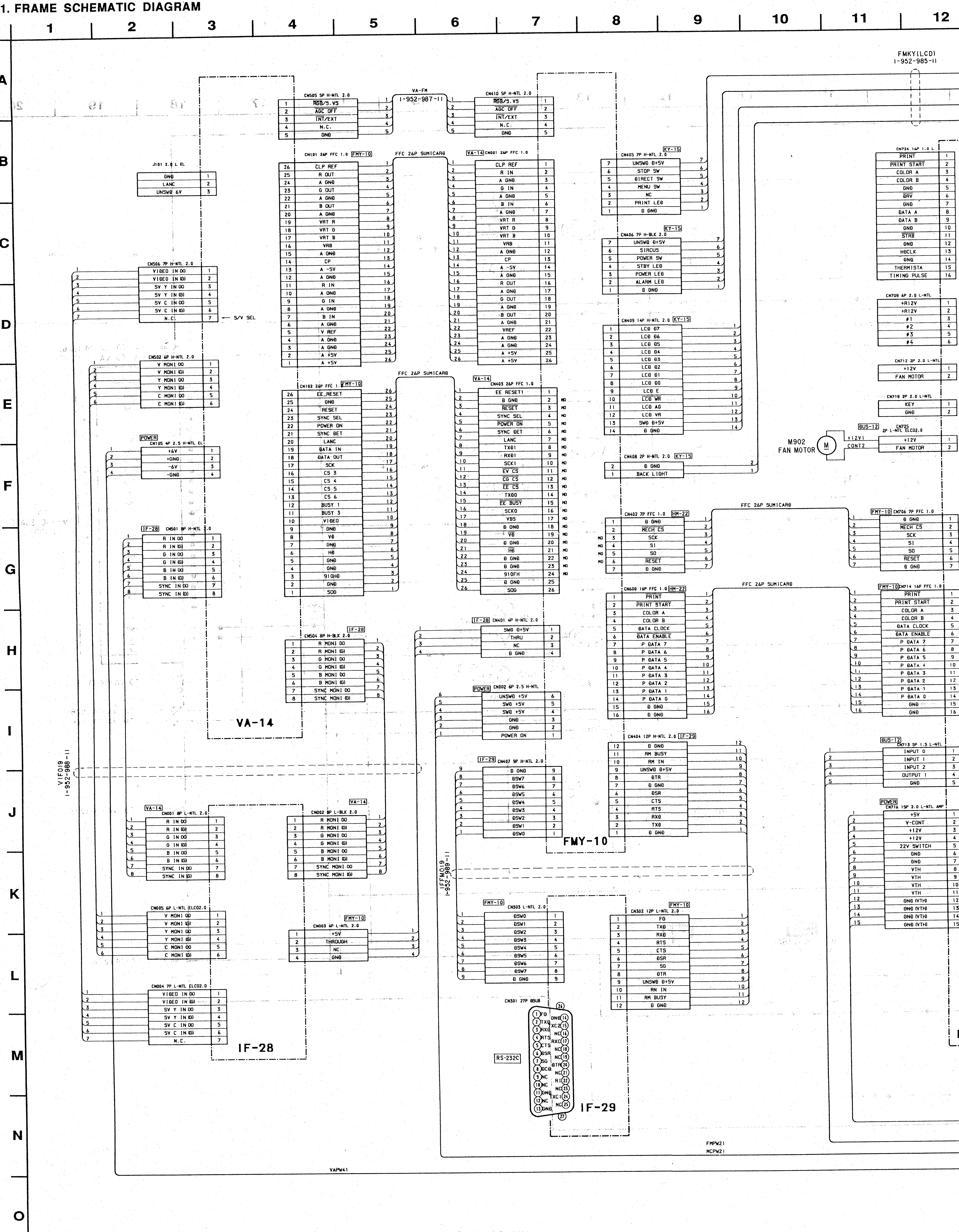
3-6. POWER SUPPLY BLOCK DIAGRAM


POWER SUPPLY
CN003
LIVE
NEUTRAL
POWER SW
CN002
F101
CN001
LIVE
NEUTRAL
AC IN
L101,102
NOISE FILTER
D101
RECT
IC101
D106
SWITCHING REGULATOR
Q101,D105
24V REG
D103
RECT
T101
D201,202
RECT
RV201
HEAD VOLTAGE MAX
Q201
Q202
RV202
22V
Q203
PC101
IC201
VOLTAGE ERROR AMP
RV203
HEAD VOLTAGE MIN
IC202
HEAD VOLTAGE CONTROL AMP
IC203
REF 3V
Q204
RY201
CN904
SW+12V
SW+5V
CN906
CHECK CONT
SW 13-21V
FOR CHECK
CN903
SW 13-21V
V-CONT1
V-CONT2
T102
D207
RECT
D204
-Vcc RECT
R210
D205,206
6V RECT
D108
IC102
SWITCHING REGULATOR
D209
RECT
IC208
-6V REG
R228
PC201
PC102
IC204
VOLTAGE ERROR AMP
RV204
6V
IC206
12V REG
IC205
5V REG
Q205
5V REG
IC207
SW +12V
SW +5V
CN902
SW +5V
POWER ON
UNSW +5V
CN907
SW +5V
UN SW+6V
0
SW -6V
CN901
POWER LED +5V
D803
POWER LED
CN811
S-25 BOARD
THERMAL HEAD
HEATER
THERMISTOR
VH
GND
VDD
THERMISTA
THERMISTA


VA-14 BOARD
Q91, 92
CURRENT LIMITER
UNSWD 6V
LANC
J101
REMOTE
IC091
+5V REG
IC092
-6V REG
CN105
+6V
+GND
-6V
-GND
L092
L094
L093
+5V
-5V
ANALOG VIDEO
A+5V
A-5V
CN101
CN102
FMY-10 BOARD
CN001
CN002
A +5V
A -5V
D +5V
DIGITAL VIDEO
UNSWD +5V
SWD +5V
GND
POWER ON
CN002
CC030 UNSWD+5
CC032 UNSWD+5
CC031 SWD+5
CC033 SWD+5
L004
L003
IC410
CPU
Vss
AN 0
IC404
MODE CONTROL
Vcc
P12
LS1
LS0
RMC1
X RST
P15
Q402
Q401
IC402
VOLTAGE DET
D401
KY-15 BOARD
IC802 (1/2)
CN406 CN801
POWER SW
SIRCS
UNSWD D+5V
NC
CN405 CN802
UNSWD D+5V
CN409 CN803
SWD D+5V
IC802 (2/2)
CN806 CN817
SIRCUS IN
IR RM OUT
IR RM IN
UNSWD D+5V
CN805
UNSWD D+5V
SWD D+5V
PTC-27 BOARD
CN816
SIRCS JACK
REMOTE CONTROL RECEIVER
R811
IC801
UNSWD D+5V
W801
W802
KEY BOARD
LCD
SWD D+5V
CN404 CN302
IF-29 BOARD
UNSWD +5V
CN401 CN003
SWD D+5V
IF-28 BOARD
HM-22 BOARD
L701, 702
+5V
V CONT
+12V
L703
22V SWITCH
BUFFER
Q710
GND
VTH
GND(VTH)
CN716
HEAD CONTROL
SYSTEM CONTROL
IC708
SYSTEM CONTROL
VDD
AVDD
AVREF
H TEMP
R TEMP
12V/23V
RIBBON HEAD MOTOR DRIVE
IC709
D701
F001
D702
R713
R715
Q703, 711
Q705-708
PLATEN MOTOR DRIVE
CN712
CN725
CN709
+R12V
M901 FAN MOTOR
M903 PLATEN MOTOR
CN910
SW +12V
SW +5V
CN918
CN919
DUS-12 BOARD
M902 FAN MOTOR
CN717
CN715
THERMISTA
TH701 TEMP SENSOR
IC706 (2/2)
V CONT AMP
Q701
Q702
IC706 (1/2)
V CONT BUFFER
CC720
IC710 (5/6)
S705 TEST

SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

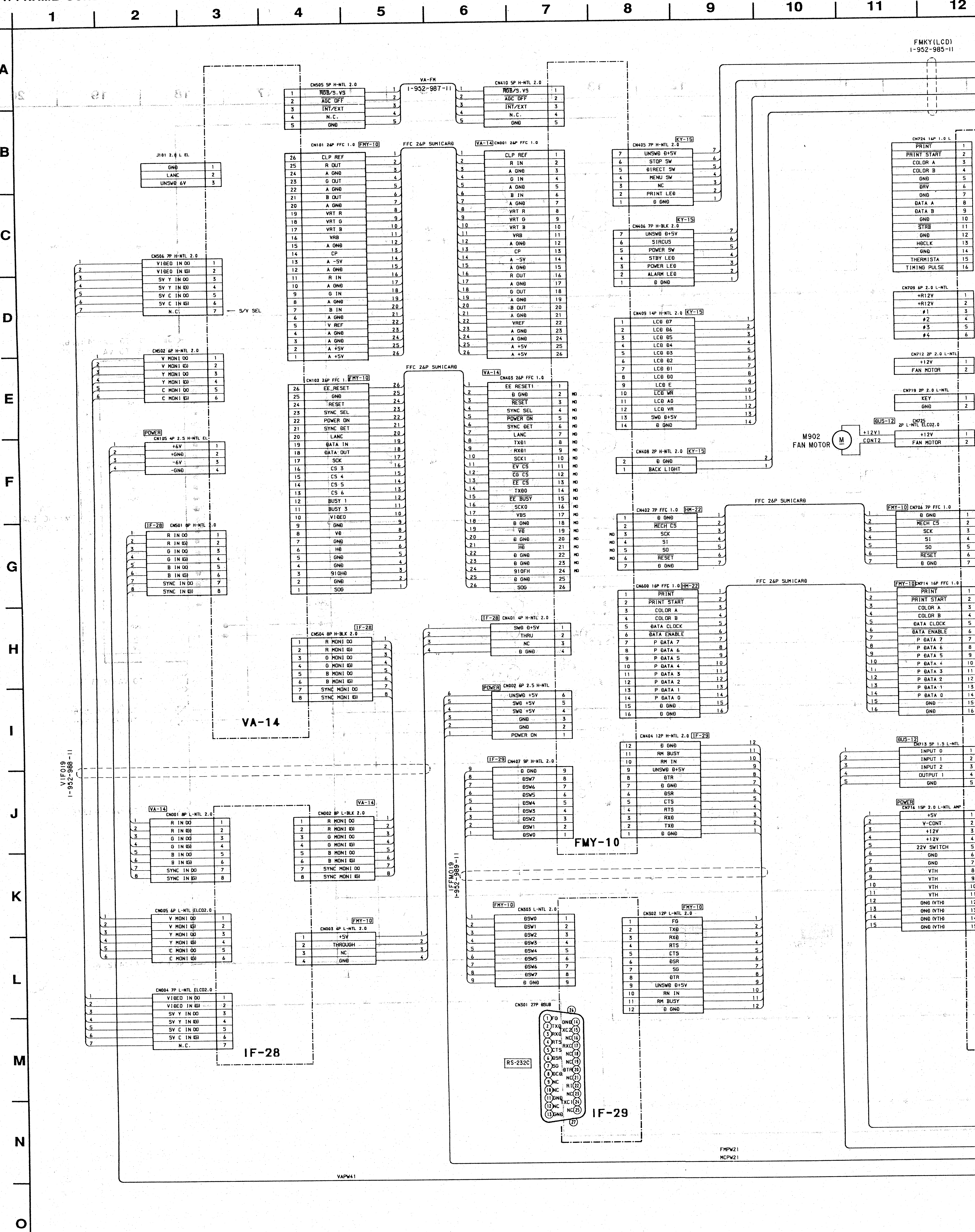
1. FRAME SCHEMATIC DIAGRAM

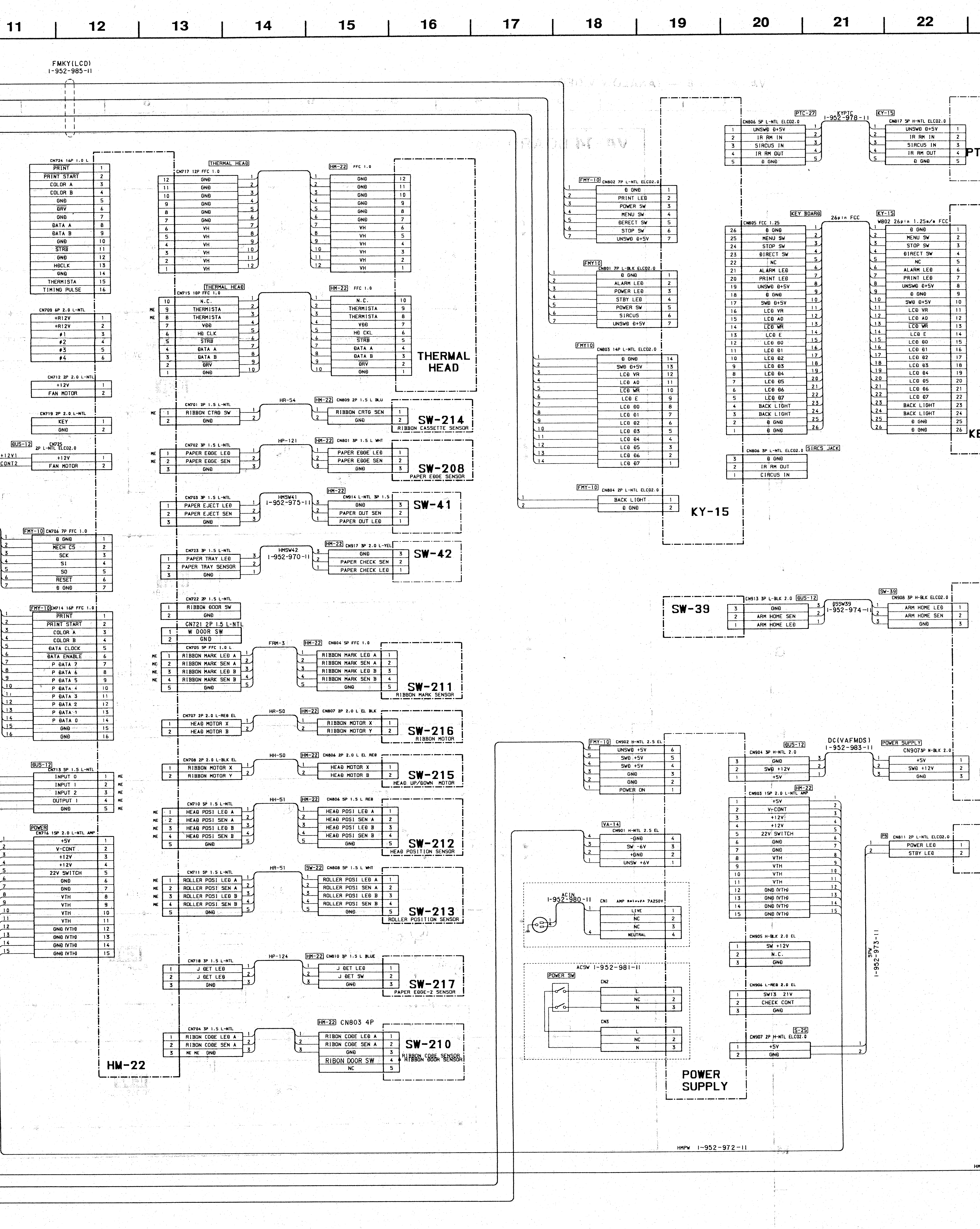


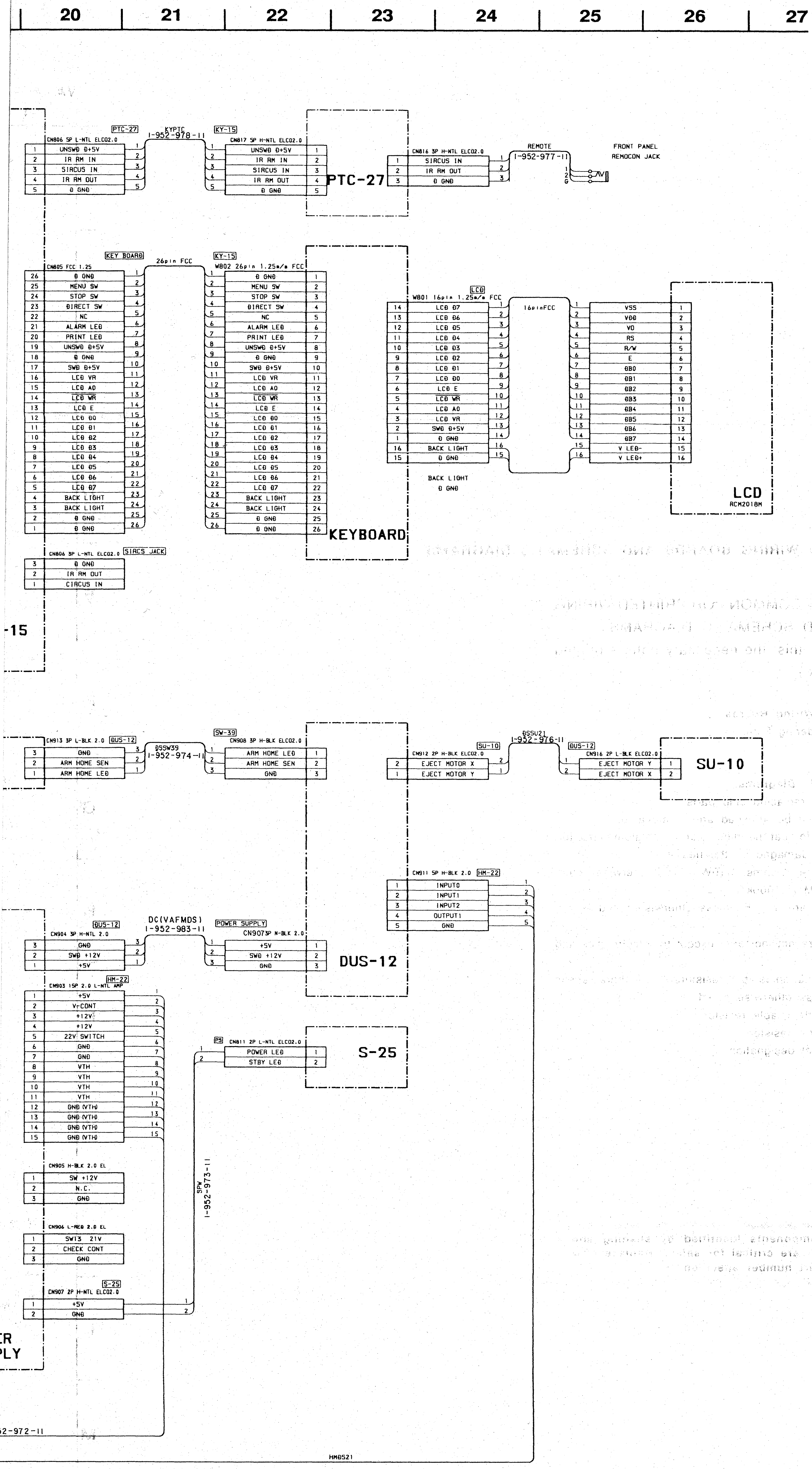
1
2
3
4
5
6
7
8
9
10
11
12
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
VA-14
IF-28
FMY-10
IF-29
VA-FM
1-952-987-11
FMKY(LCD)
1-952-985-11
VIF019
1-952-988-11
IFFM019
1-952-989-11
FFC 26P SUMICARD
J101 2.0 L EL
CN506 7P H-NTL 2.0
CN502 6P H-NTL 2.0
POWER
CN105 4P 2.5 H-NTL EL
IF-28 CN501 8P H-NTL 2.0
CN505 5P H-NTL 2.0
CN101 24P FFC 1.0 FMY-10
CN102 26P FFC 1.0 FMY-10
IF-28 CN504 8P H-BLK 2.0
VA-14 CN001 8P L-NTL 2.0
VA-14 CN002 8P L-BLK 2.0
CN005 6P L-NTL ELCO2.0
CN004 7P L-NTL ELCO2.0
FMY-10 CN003 4P L-NTL 2.0
CN410 5P H-NTL 2.0
VA-14 CN001 24P FFC 1.0
VA-14 CN403 26P FFC 1.0
IF-28 CN401 4P H-NTL 2.0
POWER CN002 6P 2.5 H-NTL
IF-29 CN407 9P H-NTL 2.0
FMY-10 CN303 L-NTL 2.0
CN301 27P DSUB
RS-232C
KY-15 CN405 7P H-NTL 2.0
KY-15 CN406 7P H-BLK 2.0
CN409 14P H-NTL 2.0 KY-15
CN408 2P H-NTL 2.0 KY-15
CN402 7P FFC 1.0 HM-22
CN600 16P FFC 1.0 HM-22
CN404 12P H-NTL 2.0 IF-29
FMY-10 CN302 12P L-NTL 2.0
CN724 16P 1.0 L
CN709 6P 2.0 L-NTL
CN712 2P 2.0 L-NTL
CN719 2P 2.0 L-NTL
BUS-12 CN725 2P L-NTL ELCO2.0
M902
FAN MOTOR
+12V1
CONT2
FMY-10 CN706 7P FFC 1.0
FMY-10 CN714 16P FFC 1.0
BUS-12 CN713 5P 1.5 L-NTL
POWER CN716 15P 2.0 L-NTL AMP
S/V SEL
GND
LANC
UNSW0 6V
VIDEO IN (X)
VIDEO IN (G)
SV Y IN (X)
SV Y IN (G)
SV C IN (X)
SV C IN (G)
N.C.
V MONI (X)
V MONI (G)
Y MONI (X)
Y MONI (G)
C MONI (X)
C MONI (G)
+6V
+GND
-6V
-GND
R IN (X)
R IN (G)
G IN (X)
G IN (G)
B IN (X)
B IN (G)
SYNC IN (X)
SYNC IN (G)
RGB/S.VS
AGC OFF
INT/EXT
N.C.
CLP REF
R OUT
A GND
G OUT
B OUT
VRT R
VRT G
VRT B
VRB
CP
A -5V
R IN
G IN
B IN
V REF
A +5V
EE_RESET
RESET
SYNC SEL
POWER ON
SYNC DET
DATA IN
DATA OUT
SCK
CS 3
CS 4
CS 5
CS 6
BUSY 1
BUSY 3
VIDEO
VD
HD
910HD
SOG
R MONI (X)
R MONI (G)
G MONI (X)
G MONI (G)
B MONI (X)
B MONI (G)
SYNC MONI (X)
SYNC MONI (G)
+5V
THROUGH
NC
EE RESET1
D GND
TXD1
RXD1
SCK1
EV CS
CG CS
EE CS
TXD0
EE BUSY
SCKO
VBS
910FH
THRU
SW0 0+5V
UNSW0 +5V
SW0 +5V
DSW0
DSW1
DSW2
DSW3
DSW4
DSW5
DSW6
DSW7
FG
TXD
RXD
RTS
CTS
DSR
SG
DTR
UNSW0 D+5V
RM IN
RM BUSY
DCD
TXC
RXC
RI
STOP SW
DIRECT SW
MENU SW
PRINT LED
SIRCUS
POWER SW
STBY LED
POWER LED
ALARM LED
LCD D7
LCD D6
LCD D5
LCD D4
LCD D3
LCD D2
LCD D1
LCD D0
LCD E
LCD WR
LCD A0
LCD VR
SW0 D+5V
BACK LIGHT
MECH CS
SI
SO
PRINT
PRINT START
COLOR A
COLOR B
DATA CLOCK
DATA ENABLE
P DATA 7
P DATA 6
P DATA 5
P DATA 4
P DATA 3
P DATA 2
P DATA 1
P DATA 0
DRV
DATA A
DATA B
STRB
HDCLK
THERMISTA
TIMING PULSE
+R12V
#1
#2
#3
#4
+12V
FAN MOTOR
KEY
INPUT 0
INPUT 1
INPUT 2
OUTPUT 1
V-CONT
22V SWITCH
VTH
GND (VTH)
MD
FMPW21
MCPW21
VAPW41

SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

-1. FRAME SCHEMATIC DIAGRAM


1
2
3
4
5
6
7
8
9
10
11
12
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
FMKY(LCD)
1-952-985-11
VA-FM
1-952-987-11
CN505 5P H-NTL 2.0
RGB/S.VS
AGC OFF
INT/EXT
N.C.
GND
CN410 5P H-NTL 2.0
CN101 26P FFC 1.0
FMY-10
FFC 26P SUMICARD
VA-14
CN001 26P FFC 1.0
CLP REF
R OUT
A GND
G OUT
B OUT
VRT R
VRT G
VRT B
VRB
CP
A -5V
R IN
G IN
B IN
V REF
A +5V
VREF
J101 2.0 L EL
GND
LANC
UNSWD 6V
CN506 7P H-NTL 2.0
VIDEO IN (O)
VIDEO IN (G)
SV Y IN (O)
SV Y IN (G)
SV C IN (O)
SV C IN (G)
N.C.
S/V SEL
CN502 6P H-NTL 2.0
V MONI (O)
V MONI (G)
Y MONI (O)
Y MONI (G)
C MONI (O)
C MONI (G)
POWER
CN105 4P 2.5 H-NTL EL
+6V
+GND
-6V
-GND
IF-28
CN501 8P H-NTL 2.0
R IN (O)
R IN (G)
G IN (O)
G IN (G)
B IN (O)
B IN (G)
SYNC IN (O)
SYNC IN (G)
CN102 26P FFC 1.0
EE_RESET
GND
RESET
SYNC SEL
POWER ON
SYNC DET
LANC
DATA IN
DATA OUT
SCK
CS 3
CS 4
CS 5
CS 6
BUSY 1
BUSY 3
VIDEO
VD
HD
910HD
SOG
CN403 26P FFC 1.0
EE RESET1
D GND
RESET
SYNC SEL
POWER ON
SYNC DET
LANC
TXD1
RXD1
SCK1
EV CS
CG CS
EE CS
TXD0
EE BUSY
SCK0
VBS
D GND
VD
HD
910FH
SOG
MD
KY-15
CN405 7P H-NTL 2.0
UNSWD D+5V
STOP SW
DIRECT SW
MENU SW
NC
PRINT LED
D GND
CN406 7P H-BLK 2.0
UNSWD D+5V
SIRCUS
POWER SW
STBY LED
POWER LED
ALARM LED
D GND
CN409 14P H-NTL 2.0
LCD D7
LCD D6
LCD D5
LCD D4
LCD D3
LCD D2
LCD D1
LCD D0
LCD E
LCD WR
LCD A0
LCD VR
SWD D+5V
D GND
CN408 2P H-NTL 2.0
D GND
BACK LIGHT
CN724 16P 1.0 L
PRINT
PRINT START
COLOR A
COLOR B
GND
DRV
DATA A
DATA B
STRB
HDCLK
THERMISTA
TIMING PULSE
CN709 6P 2.0 L-NTL
+R12V
φ1
φ2
φ3
φ4
CN712 2P 2.0 L-NTL
+12V
FAN MOTOR
CN719 2P 2.0 L-NTL
KEY
GND
BUS-12
CN725 2P L-NTL ELC02.0
+12V1
CONT2
M902
FAN MOTOR
M
CN402 7P FFC 1.0
HM-22
D GND
MECH CS
SCK
SI
SO
RESET
CN706 7P FFC 1.0
CN600 16P FFC 1.0
PRINT
PRINT START
COLOR A
COLOR B
DATA CLOCK
DATA ENABLE
P DATA 7
P DATA 6
P DATA 5
P DATA 4
P DATA 3
P DATA 2
P DATA 1
P DATA 0
D GND
CN714 16P FFC 1.0
CN401 4P H-NTL 2.0
SWD D+5V
THRU
NC
D GND
CN504 8P H-BLK 2.0
R MONI (O)
R MONI (G)
G MONI (O)
G MONI (G)
B MONI (O)
B MONI (G)
SYNC MONI (O)
SYNC MONI (G)
CN002 6P 2.5 H-NTL
UNSWD +5V
SWD +5V
POWER ON
VA-14
VIF019
1-952-988-11
CN404 12P H-NTL 2.0
IF-29
D GND
RM BUSY
RM IN
UNSWD D+5V
DTR
DSR
CTS
RTS
RXD
TXD
CN713 5P 1.5 L-NTL
INPUT 0
INPUT 1
INPUT 2
OUTPUT 1
CN407 9P H-NTL 2.0
DSW7
DSW6
DSW5
DSW4
DSW3
DSW2
DSW1
DSW0
FMY-10
CN716 15P 2.0 L-NTL AMP
+5V
V-CONT
+12V
22V SWITCH
VTH
GND (VTH)
CN001 8P L-NTL 2.0
R IN (O)
R IN (G)
G IN (O)
G IN (G)
B IN (O)
B IN (G)
SYNC IN (O)
SYNC IN (G)
CN002 8P L-BLK 2.0
R MONI (O)
R MONI (G)
G MONI (O)
G MONI (G)
B MONI (O)
B MONI (G)
SYNC MONI (O)
SYNC MONI (G)
IFFM019
1-952-989-11
CN303 L-NTL 2.0
CN302 12P L-NTL 2.0
FG
TXD
RXD
RTS
CTS
DSR
SG
DTR
UNSWD D+5V
RN IN
RM BUSY
D GND
CN005 6P L-NTL ELC02.0
V MONI (O)
V MONI (G)
Y MONI (O)
Y MONI (G)
C MONI (O)
C MONI (G)
CN003 4P L-NTL 2.0
+5V
THROUGH
NC
GND
CN004 7P L-NTL ELC02.0
VIDEO IN (O)
VIDEO IN (G)
SV Y IN (O)
SV Y IN (G)
SV C IN (O)
SV C IN (G)
N.C.
IF-28
CN301 27P DSUB
RS-232C
FG
TXD
RXD
RTS
CTS
DSR
SG
DCD
NC
GND
TXC2
RXC
TXC1
RI
DTR
IF-29
FMPW21
MCPW21
VAPW41


11
12
13
14
15
16
17
18
19
20
21
22
FMKY(LCD)
1-952-985-11
CN724 16P 1.0 L
PRINT
PRINT START
COLOR A
COLOR B
GND
DRV
GND
DATA A
DATA B
GND
STRB
GND
HDCLK
GND
THERMISTA
TIMING PULSE
THERMAL HEAD
CN717 12P FFC 1.0
GND
VH
HM-22 FFC 1.0
CN715 10P FFC 1.0
N.C.
THERMISTA
VDD
HD CLK
STRB
DATA A
DATA B
DRV
THERMAL HEAD
CN709 6P 2.0 L-NTL
+R12V
#1
#2
#3
#4
CN712 2P 2.0 L-NTL
+12V
FAN MOTOR
CN719 2P 2.0 L-NTL
KEY
GND
BUS-12
CN725 2P L-NTL ELCO2.0
+12V1
CONT2
+12V
FAN MOTOR
CN761 2P 1.5 L-NTL
RIBBON CTRG SW
HR-54
HM-22 CN809 2P 1.5 L BLU
RIBBON CRTG SEN
SW-214
RIBBON CASSETTE SENSOR
CN702 3P 1.5 L-NTL
PAPER EDGE LED
PAPER EDGE SEN
HP-121
HM-22 CN801 3P 1.5 L WHT
SW-208
PAPER EDGE SENSOR
CN703 3P 1.5 L-NTL
PAPER EJECT LED
PAPER EJECT SEN
HMSW41
1-952-975-11
HM-22 CN914 L-NTL 3P 1.5
PAPER OUT SEN
PAPER OUT LED
SW-41
CN723 3P 1.5 L-NTL
PAPER TRAY LED
PAPER TRAY SENSOR
HMSW42
1-952-970-11
HM-22 CN917 3P 2.0 L-YEL
PAPER CHECK SEN
PAPER CHECK LED
SW-42
FMY-10 CN706 7P FFC 1.0
MECH CS
SCK
SI
SO
RESET
CN722 2P 1.5 L-NTL
RIBBON DOOR SW
CN721 2P 1.5 L-NTL
W DOOR SW
FMY-10 CN714 16P FFC 1.0
DATA CLOCK
DATA ENABLE
P DATA 7
P DATA 6
P DATA 5
P DATA 4
P DATA 3
P DATA 2
P DATA 1
P DATA 0
CN705 5P FFC 1.0 L
RIBBON MARK LED A
RIBBON MARK SEN A
RIBBON MARK LED B
RIBBON MARK SEN B
FRM-3
HM-22 CN804 5P FFC 1.0
SW-211
RIBBON MARK SENSOR
CN707 2P 2.0 L-RED EL
HEAD MOTOR X
HEAD MOTOR B
HR-50
HM-22 CN807 2P 2.0 L EL BLK
RIBBON MOTOR X
RIBBON MOTOR Y
SW-216
RIBBON MOTOR
CN708 2P 2.0 L-BLK EL
HH-50
HM-22 CN806 2P 2.0 L EL RED
HEAD MOTOR X
HEAD MOTOR B
SW-215
HEAD UP/DOWN MOTOR
BUS-12
CN713 5P 1.5 L-NTL
INPUT 0
INPUT 1
INPUT 2
OUTPUT 1
POWER
CN716 15P 2.0 L-NTL AMP
+5V
V-CONT
22V SWITCH
VTH
GND (VTH)
CN710 5P 1.5 L-NTL
HEAD POSI LED A
HEAD POSI SEN A
HEAD POSI LED B
HEAD POSI SEN B
HH-51
HM-22 CN806 5P 1.5 L RED
SW-212
HEAD POSITION SENSOR
CN711 5P 1.5 L-NTL
ROLLER POSI LED A
ROLLER POSI SEN A
ROLLER POSI LED B
ROLLER POSI SEN B
HR-51
SW-22 CN808 5P 1.5 L WHT
SW-213
ROLLER POSITION SENSOR
CN718 3P 1.5 L-NTL
J DET LED
J DET SW
HP-124
HM-22 CN810 3P 1.5 L BLUE
SW-217
PAPER EDGE-2 SENSOR
CN704 3P 1.5 L-NTL
RIBON CODE LED A
RIBON CODE SEN A
HM-22 CN803 4P
RIBON DOOR SW
NC
SW-210
RIBBON CODE SENSOR
RIBBON DOOR SENSOR
HM-22
ME
FMY-10 CN802 7P L-NTL ELCO2.0
B GND
PRINT LED
POWER SW
MENU SW
DIRECT SW
STOP SW
UNSWD B+5V
FMY10 CN801 7P L-BLK ELCO2.0
ALARM LED
POWER LED
STBY LED
SIRCUS
FMY10 CN803 14P L-NTL ELCO2.0
SWD B+5V
LCD VR
LCD AO
LCD WR
LCD E
LCD 00
LCD 01
LCD 02
LCD 03
LCD 04
LCD 05
LCD 06
LCD 07
FMY-10 CN804 2P L-NTL ELCO2.0
BACK LIGHT
KY-15
PTC-27
KYPTC
1-952-978-11
KY-15
CN806 5P L-NTL ELCO2.0
UNSWD B+5V
IR RM IN
SIRCUS IN
IR RM OUT
CN817 5P H-NTL ELCO2.0
PT
KEY BOARD
CN805 FFC 1.25
26pin FCC
KY-15
W802 26pin 1.25m/m FCC
NC
ALARM LED
PRINT LED
CN806 3P L-NTL ELCO2.0
SIRCS JACK
IR RM OUT
CIRCUS IN
KE
SW-39
CN913 3P L-BLK 2.0
BUS-12
ARM HOME SEN
ARM HOME LED
DSSW39
1-952-974-11
SW-39
CN908 3P H-BLK ELCO2.0
FMY-10
CN902 H-NTL 2.5 EL
UNSWD +5V
SWD +5V
POWER ON
VA-14
CN901 H-NTL 2.5 EL
-GND
SW -6V
+GND
UNSW +6V
ACIN
1-952-980-11
CN1 AMP
LIVE
NEUTRAL
ACSW 1-952-981-11
POWER SW
CN2
L
NC
N
CN3
POWER SUPPLY
HMPW 1-952-972-11
DC(VAFMDS)
1-952-983-11
BUS-12
CN904 3P H-NTL 2.0
SWD +12V
POWER SUPPLY
CN907 3P H-BLK 2.0
+5V
HM-22
CN903 15P 2.0 L-NTL AMP
V-CONT
+12V
22V SWITCH
VTH
GND (VTH)
CN905 H-BLK 2.0 EL
SW +12V
N.C.
CN906 L-RED 2.0 EL
SW13 21V
CHECK CONT
S-25
CN907 2P H-NTL ELCO2.0
SPW
1-952-973-11
P3
CN811 2P L-NTL ELCO2.0
POWER LED
STBY LED
HM


20
21
22
23
24
25
26
27
PTC-27
KYPTC
1-952-978-11
KY-15
CN806 5P L-NTL ELCO2.0
UNSWD D+5V
IR RM IN
SIRCUS IN
IR RM OUT
D GND
CN817 5P H-NTL ELCO2.0
PTC-27
CN816 3P H-NTL ELCO2.0
SIRCUS IN
IR RM OUT
D GND
REMOTE
1-952-977-11
FRONT PANEL
REMOCON JACK
KEY BOARD
26pin FCC
CN805 FCC 1.25
W802 26pin 1.25m/m FCC
D GND
MENU SW
STOP SW
DIRECT SW
NC
ALARM LED
PRINT LED
UNSWD D+5V
SWD D+5V
LCD VR
LCD A0
LCD WR
LCD E
LCD D0
LCD D1
LCD D2
LCD D3
LCD D4
LCD D5
LCD D6
LCD D7
BACK LIGHT
KEYBOARD
LCD
W801 16pin 1.25m/m FCC
16pinFCC
VSS
VDD
VO
RS
R/W
E
DB0
DB1
DB2
DB3
DB4
DB5
DB6
DB7
V LED-
V LED+
BACK LIGHT
D GND
LCD
RCM2018M
CN806 3P L-NTL ELCO2.0
SIRCS JACK
IR RM OUT
CIRCUS IN
-15
CN913 3P L-BLK 2.0
DUS-12
GND
ARM HOME SEN
ARM HOME LED
DSSW39
1-952-974-11
SW-39
CN908 3P H-BLK ELCO2.0
CN912 2P H-BLK ELCO2.0
SU-10
EJECT MOTOR X
EJECT MOTOR Y
DSSU21
1-952-976-11
DUS-12
CN916 2P L-BLK ELCO2.0
SU-10
CN911 5P H-BLK 2.0
HM-22
INPUT0
INPUT1
INPUT2
OUTPUT1
GND
DUS-12
CN904 3P H-NTL 2.0
SWD +12V
+5V
DC(VAFMDS)
1-952-983-11
POWER SUPPLY
CN9073P N-BLK 2.0
DUS-12
HM-22
CN903 15P 2.0 L-NTL AMP
V-CONT
+12V
22V SWITCH
VTH
GND (VTH)
PS
CN811 2P L-NTL ELCO2.0
POWER LED
STBY LED
S-25
SPW
1-952-973-11
CN905 H-BLK 2.0 EL
SW +12V
N.C.
CN906 L-RED 2.0 EL
SW13 21V
CHECK CONT
S-25
CN907 2P H-NTL ELCO2.0
ER
PLY
52-972-11
HM8521

4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

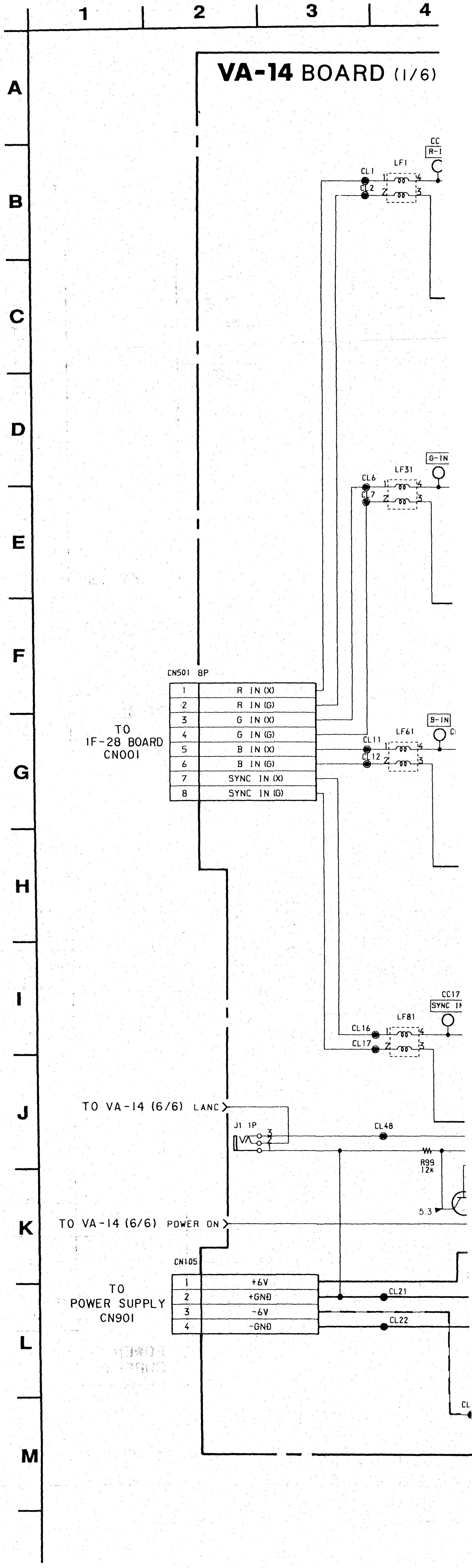
THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is printed in each block.)

- **For Printed Wiring Boards.**
- ▓ : Soldering Side.
- ░ : Component Side.

- **For Schematic Diagrams.**
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/10W unless otherwise noted.
  kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μF unless otherwise noted.
  pF: μμF.
  50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : nonflammable resistor.
- : fusibe resistor.
- ☐ : panel designation.
- ☐ : adjustment for repeair.
- ——— : B+ Line.
- - - - - : B− Line.
- Voltages are dc between ground and measurement points.
- Readings are taken with a color-bar signal input.
- Readings are taken with a digital multimeter (DC10MΩ).
- Voltage variations may be noted due to normal production tolerances.

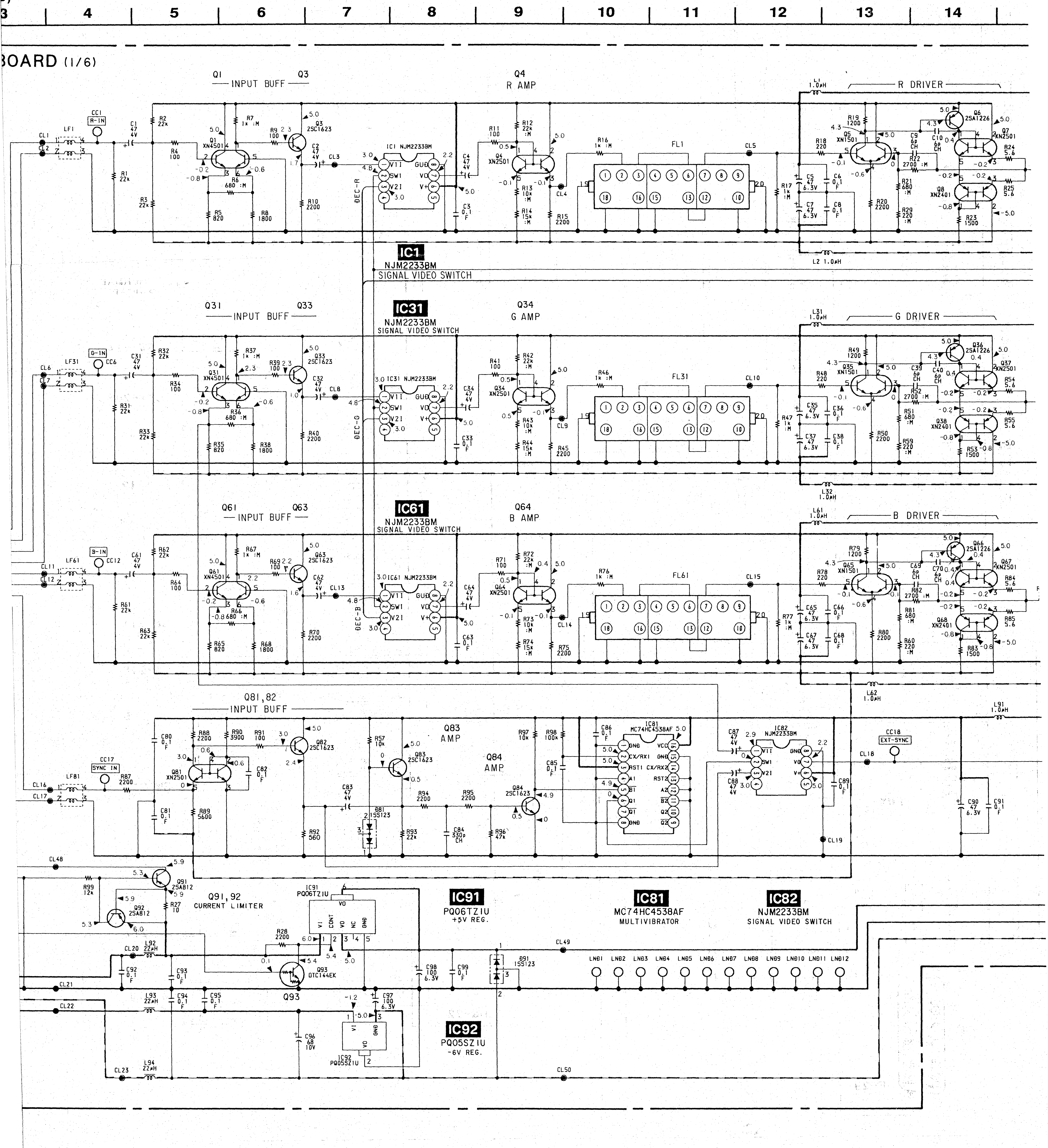
Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

VA-14 — 1/6 — (ANALOG VIDEO)

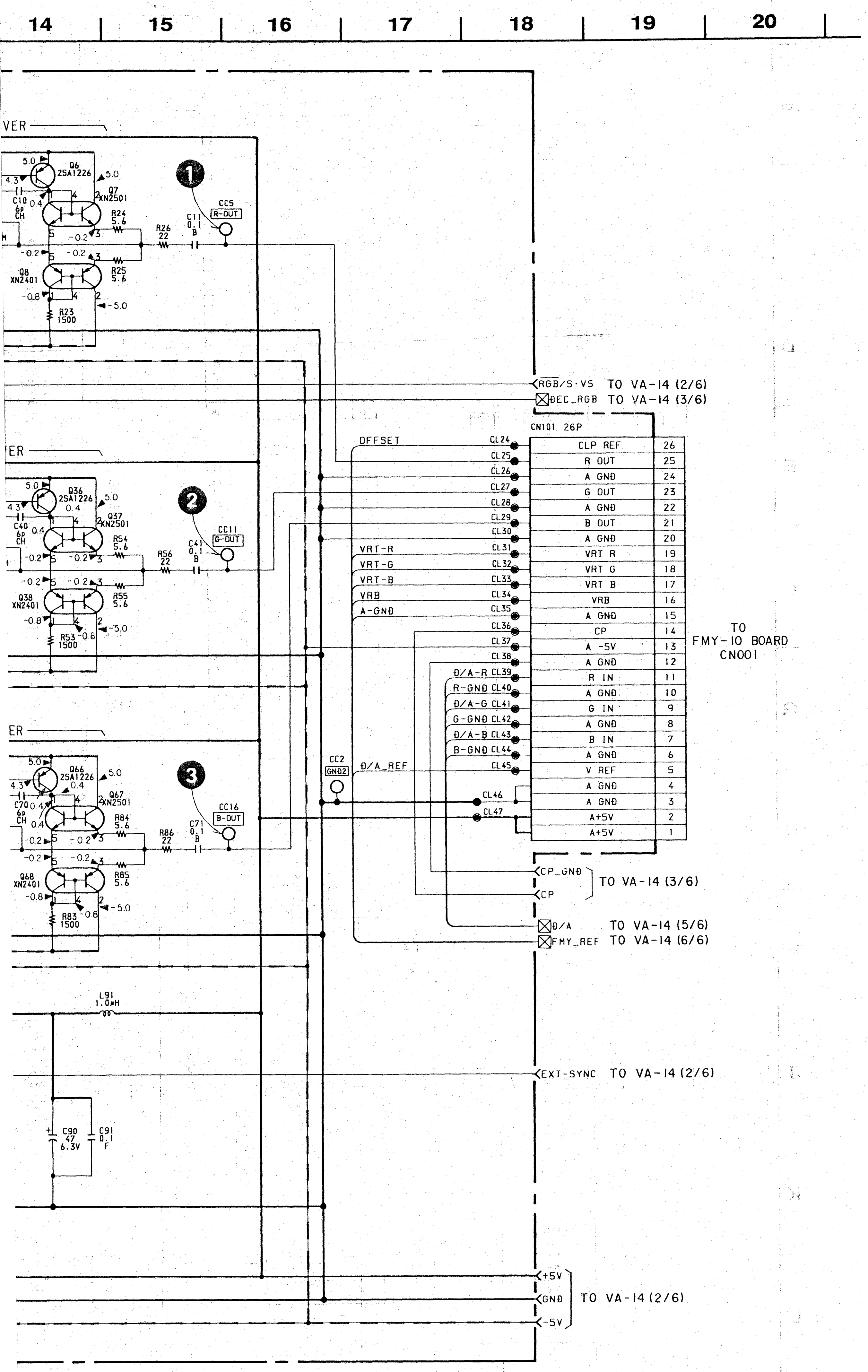

1
2
3
4
A
B
C
D
E
F
G
H
I
J
K
L
M
VA-14 BOARD (1/6)
CC
R-I
LF1
CL1
CL2
G-IN
LF31
CL6
CL7
CN501 8P
1 R IN (X)
2 R IN (G)
3 G IN (X)
4 G IN (G)
5 B IN (X)
6 B IN (G)
7 SYNC IN (X)
8 SYNC IN (G)
TO IF-28 BOARD CN001
B-IN
LF61
CL11
CL12
CC17
SYNC IN
LF81
CL16
CL17
TO VA-14 (6/6) LANC
J1 1P
CL48
R99 12k
5.3
TO VA-14 (6/6) POWER ON
CN105
1 +6V
2 +GND
3 -6V
4 -GND
TO POWER SUPPLY CN901
CL21
CL22
CL

)

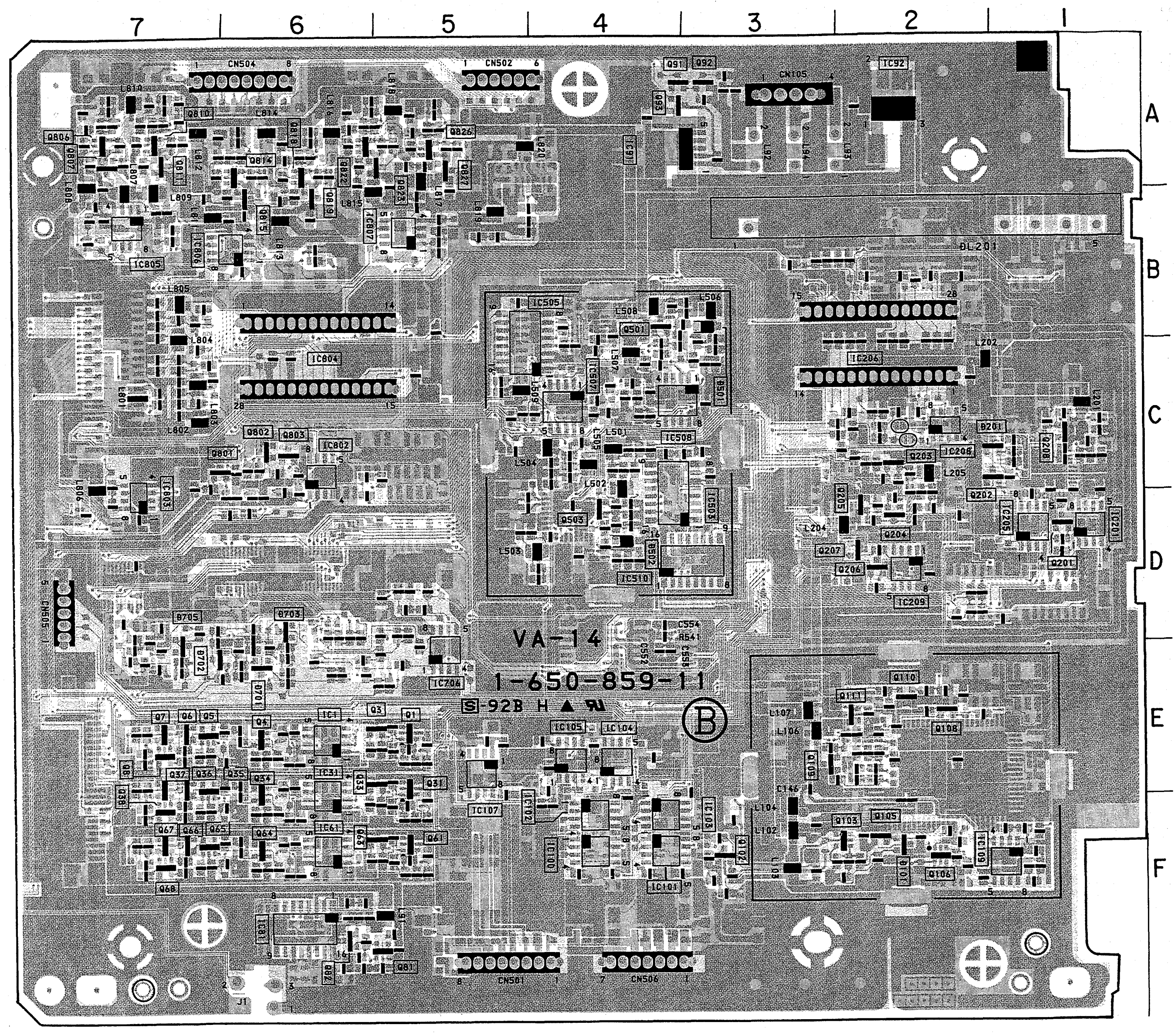
BOARD (1/6)


3
4
5
6
7
8
9
10
11
12
13
14
Q1 — INPUT BUFF — Q3
Q4 R AMP
R DRIVER
IC1 NJM2233BM
SIGNAL VIDEO SWITCH
Q31 — INPUT BUFF — Q33
IC31 NJM2233BM SIGNAL VIDEO SWITCH
Q34 G AMP
G DRIVER
Q61 — INPUT BUFF — Q63
IC61 NJM2233BM SIGNAL VIDEO SWITCH
Q64 B AMP
B DRIVER
Q81,82 INPUT BUFF
Q83 AMP
Q84 AMP
IC81 MC74HC4538AF
IC82 NJM2233BM
Q91,92 CURRENT LIMITER
IC91 PQ06TZ1U +5V REG.
IC81 MC74HC4538AF MULTIVIBRATOR
IC82 NJM2233BM SIGNAL VIDEO SWITCH
IC92 PQ05SZ1U -6V REG.
R-IN
G-IN
B-IN
SYNC IN
EXT-SYNC
FL1
FL31
FL61
DEC-R
DEC-G
DEC-B
LN01 LN02 LN03 LN04 LN05 LN06 LN07 LN08 LN09 LN010 LN011 LN012

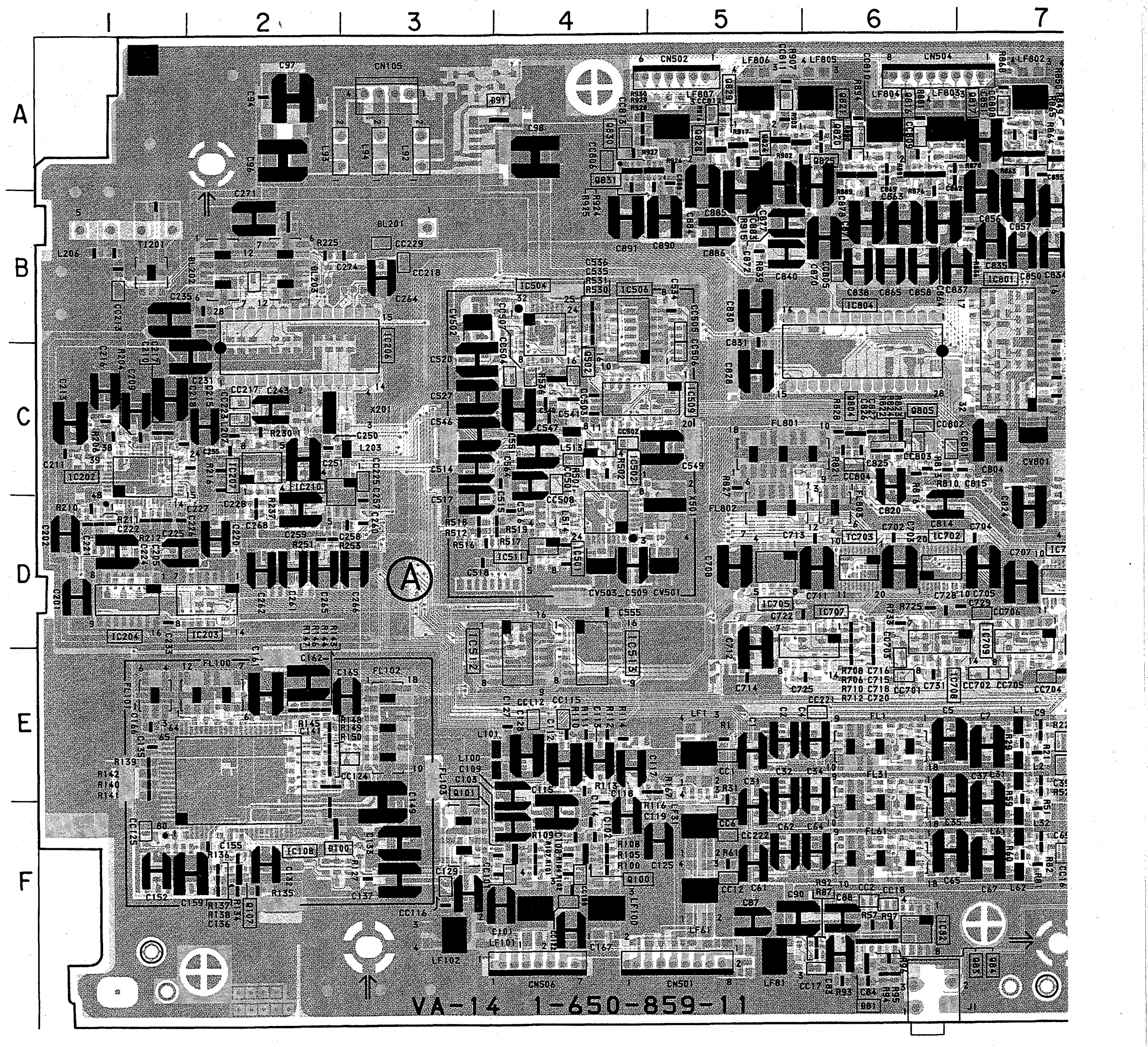
ANALOG VIDEO


14
15
16
17
18
19
20
VER
ER
ER
Q6 2SA1226
Q7 XN2501
Q8 XN2401
C10 6p CH
R24 5.6
R25 5.6
R26 22
R23 1500
C11 0.1 B
CC5 R-OUT
Q36 2SA1226
Q37 XN2501
Q38 XN2401
C40 6p CH
R54 5.6
R55 5.6
R56 22
R53 1500
C41 0.1 B
CC11 G-OUT
Q66 2SA1226
Q67 XN2501
Q68 XN2401
C70 6p CH
R84 5.6
R85 5.6
R86 22
R83 1500
C71 0.1 B
CC16 B-OUT
CC2 GND2
L91 1.0μH
C90 47 6.3V
C91 0.1 F
5.0
4.3
0.4
-0.2
-0.8
-5.0
1
2
3
RGB/S·VS TO VA-14 (2/6)
DEC_RGB TO VA-14 (3/6)
CN101 26P
OFFSET
VRT-R
VRT-G
VRT-B
VRB
A-GND
D/A-R
R-GND
D/A-G
G-GND
D/A-B
B-GND
D/A_REF
CL24
CL25
CL26
CL27
CL28
CL29
CL30
CL31
CL32
CL33
CL34
CL35
CL36
CL37
CL38
CL39
CL40
CL41
CL42
CL43
CL44
CL45
CL46
CL47
CLP REF 26
R OUT 25
A GND 24
G OUT 23
A GND 22
B OUT 21
A GND 20
VRT R 19
VRT G 18
VRT B 17
VRB 16
A GND 15
CP 14
A -5V 13
A GND 12
R IN 11
A GND 10
G IN 9
A GND 8
B IN 7
A GND 6
V REF 5
A GND 4
A GND 3
A+5V 2
A+5V 1
TO FMY-10 BOARD CN001
CP_GND
CP
TO VA-14 (3/6)
D/A TO VA-14 (5/6)
FMY_REF TO VA-14 (6/6)
EXT-SYNC TO VA-14 (2/6)
+5V
GND
-5V
TO VA-14 (2/6)

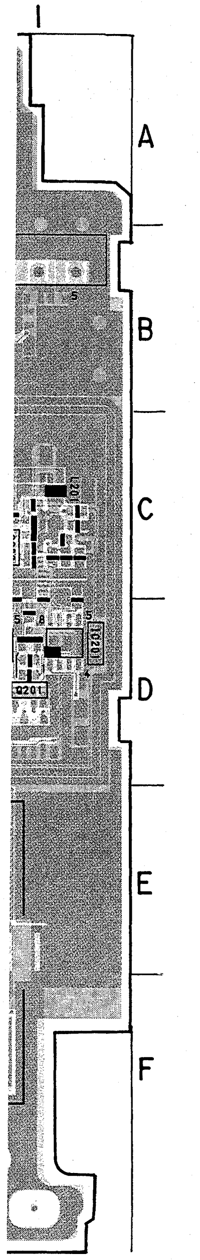
VA-14 (ANALOG VIDEO)


7
6
5
4
3
2
1
A
B
C
D
E
F
VA-14
1-650-859-11
Ⓑ

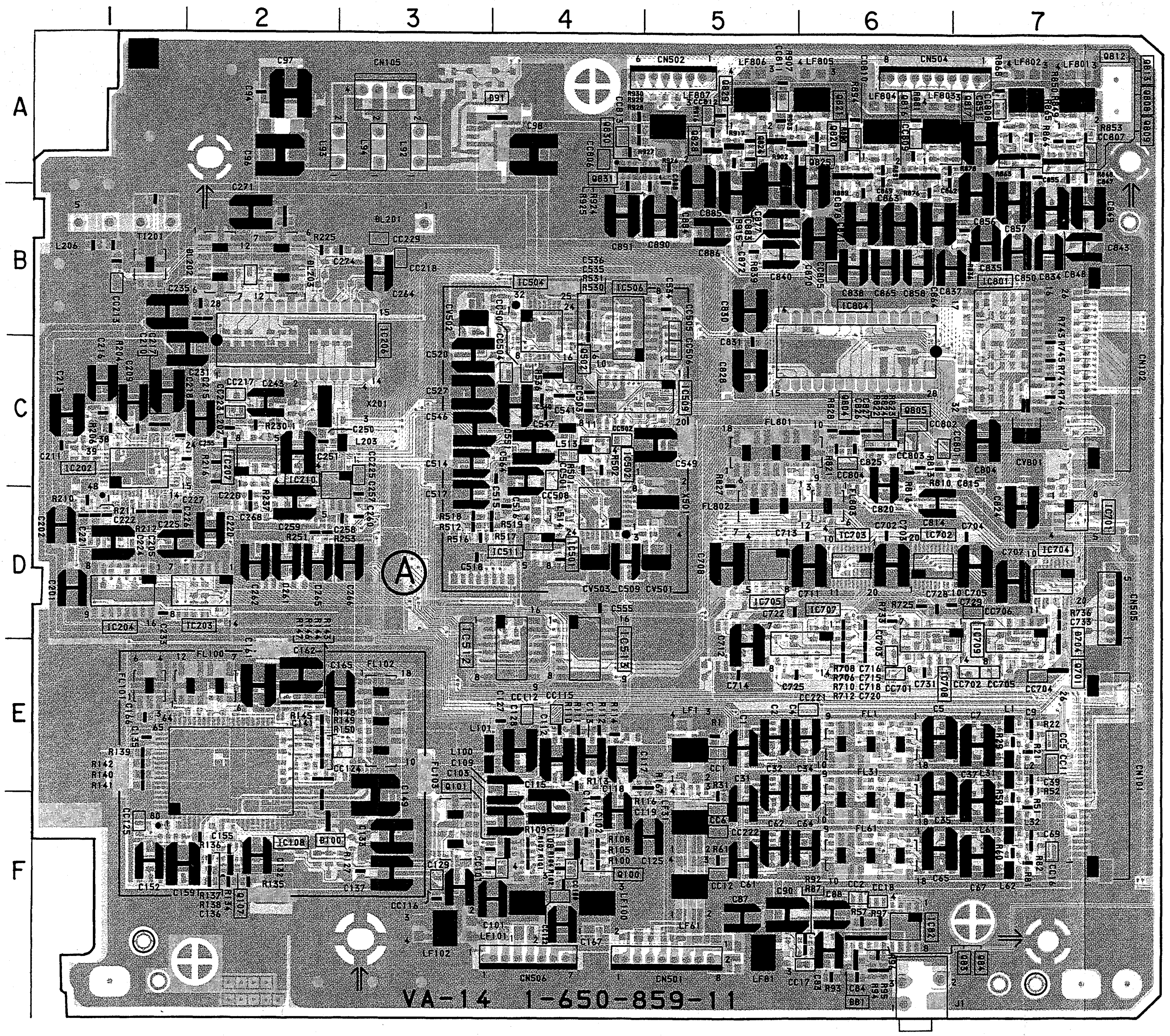
VA-14 -SOLDERING SIDE-


1
2
3
4
5
6
7
A
B
C
D
E
F
Ⓐ
VA-14 1-650-859-11

VA-14 -COMPON



RING SIDE-



VA-14 -COMPONENT SIDE-

VA-14 BOARD

CN101	E-7	
CN102	C-7	
CN105	A-3	
CN501	F-5	
CN502	A-5	
CN504	A-6	
CN505	D-7	
CN506	F-4	
CV501	D-5	
CV502	B-3	
CV801	C-7	
D081	F-6	
D091	A-4	
D100	F-2	
D101	F-2	S
D201	C-2	S
D501	B-3	S
D701	E-6	S
D702	E-7	S
D703	D-6	S
D704	E-7	
D705	D-7	S
DL202	B-2	
DL203	B-2	
FL001	E-6	
FL031	F-6	
FL061	F-6	
FL100	E-2	
FL102	E-3	
FL103	F-3	
FL801	C-5	
FL802	D-5	
IC001	E-6	S
IC031	E-6	S
IC061	F-6	S
IC081	F-6	S
IC082	F-6	
IC091	A-3	S
IC092	A-2	S
IC100	F-4	S
IC101	F-4	S
IC102	F-4	S
IC103	F-4	S
IC104	E-4	S
IC105	E-5	S
IC107	E-5	S
IC108	E-2	
IC109	F-1	S
IC201	D-1	S
IC202	C-1	
IC203	D-2	
IC204	D-1	
IC205	D-1	S
IC206	C-2	
IC207	C-2	
IC208	C-2	S
IC209	D-2	S
IC210	C-2	
IC501	D-4	
IC502	C-4	
IC503	D-4	S
IC504	B-4	
IC505	C-5	S
IC506	B-4	
IC507	C-4	S
IC508	C-4	S
IC509	C-4	
IC510	D-3	S
IC512	E-4	
IC513	E-4	
IC701	D-7	
IC702	D-6	
IC703	D-6	
IC704	D-7	
IC705	D-5	
IC706	E-5	S
IC707	E-6	
IC708	D-6	
IC709	D-7	
IC801	C-7	
IC802	C-6	S
IC803	C-7	S
IC804	C-6	
IC805	B-7	S
IC806	B-6	S
IC807	B-5	S
IS406		
J001		
JR240		
L001	E-7	
L002	E-7	
L031	E-7	
L032	F-7	
L061	F-7	
L062	F-7	
L091	F-5	S
L092	A-3	
L093	A-3	
L094	A-3	
L100	E-3	
L101	E-3	
L102	F-3	S
L103	F-3	S
L104	F-3	S
L106	E-3	S
L107	E-3	S
L201	C-1	S
L202	C-2	S
L203	C-3	
L204	D-2	S
L205	C-2	S
L207	C-2	
L401		
L501	C-4	S
L502	C-4	S
L503	D-4	S
L504	C-4	S
L505	C-4	S
L506	B-3	S
L507	C-4	S
L508	B-4	S
L509	C-5	S
L513	C-4	
L801	C-7	S
L802	C-7	S
L803	C-7	S
L804	B-7	S
L805	B-7	S
L806	C-7	S
L807	A-7	S
L808	A-7	S
L809	A-7	S
L810	A-7	S
L811	B-7	S
L812	A-7	S
L813	B-6	S
L814	A-6	S
L815	B-6	S
L816	A-6	S
L817	A-5	S
L818	A-5	S
L819	B-5	S
L820	A-5	S
LF001	E-5	
LF031	F-5	
LF061	F-5	
LF081	F-5	
LF100	F-4	
LF101	F-4	
LF102	F-3	
LF801	A-7	
LF802	A-7	
LF803	A-6	
LF804	A-6	
FL805	A-6	
FL806	A-5	
FL807	A-5	
Q001	E-5	S
Q003	E-6	S
Q004	E-6	S
Q005	E-7	S
Q008	E-7	S
Q031	E-5	S
Q033	E-6	S
Q034	E-6	S
Q035	E-7	S
Q036	E-7	S
Q037	E-7	S
Q038	F-7	S
Q061	F-5	S
Q063	F-6	S
Q064	F-6	S
Q065	F-7	S
Q066	F-7	S
Q067	F-7	S
Q068	F-7	S
Q081	F-6	S
Q082	F-6	S
Q083	F-6	
Q084	F-6	
Q091	A-4	S
Q092	A-3	S
Q093	A-4	S
Q100	F-4	
Q101	F-4	
Q102	F-3	S
Q103	F-3	S
Q105	F-2	S
Q106	F-2	S
Q107	F-2	
Q108	E-2	S
Q109	E-3	S
Q110	E-2	S
Q111	E-2	S
Q201	D-1	S
Q202	C-2	S
Q203	C-2	S
Q204	D-2	S
Q205	D-2	S
Q206	D-2	S
Q207	D-2	S
Q501	B-4	S
Q502	C-4	
Q701	E-7	
Q801	C-7	S
Q802	C-6	S
Q803	C-6	S
Q804	C-6	
Q805	C-6	
Q806	A-7	S
Q807	A-7	S
Q808	A-7	
Q809	A-7	
Q810	A-7	S
Q811	A-7	S
Q812	A-7	
Q813	A-7	
Q814	A-6	S
Q815	B-6	S
Q816	A-6	
Q817	A-6	
Q818	A-6	S
Q819	B-6	S
Q820	A-6	
Q821	A-6	
Q822	A-6	S
Q823	A-5	S
Q824	A-5	
Q825	A-5	
Q826	A-5	S
Q827	A-5	S
Q828	A-5	
Q829	A-5	
Q830	A-4	
Q831	A-4	
X201	C-2	
X501	D-5	

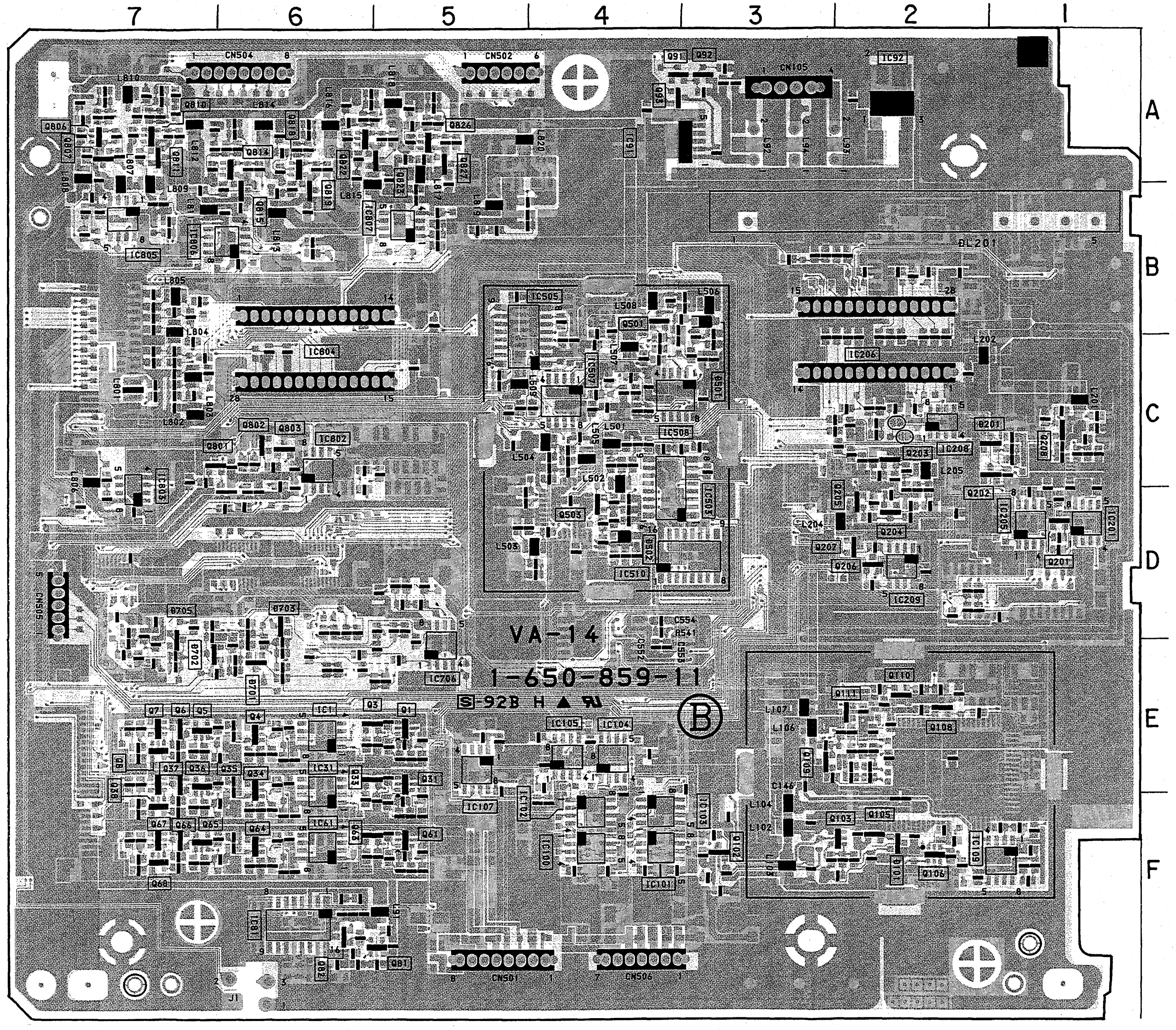
S:SOLDERING SIDE

VA-14 (ANALOG VIDEO)

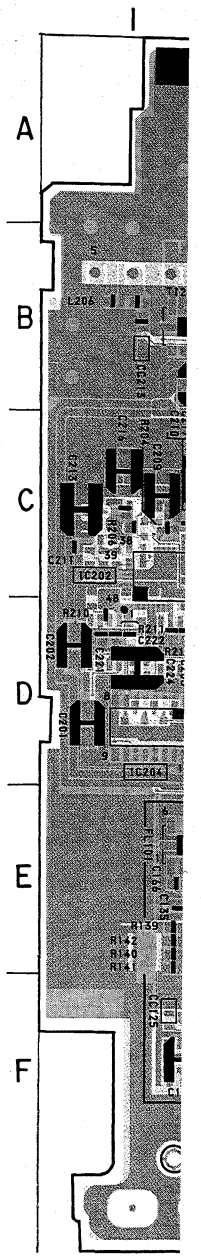
VA-14 BOARD

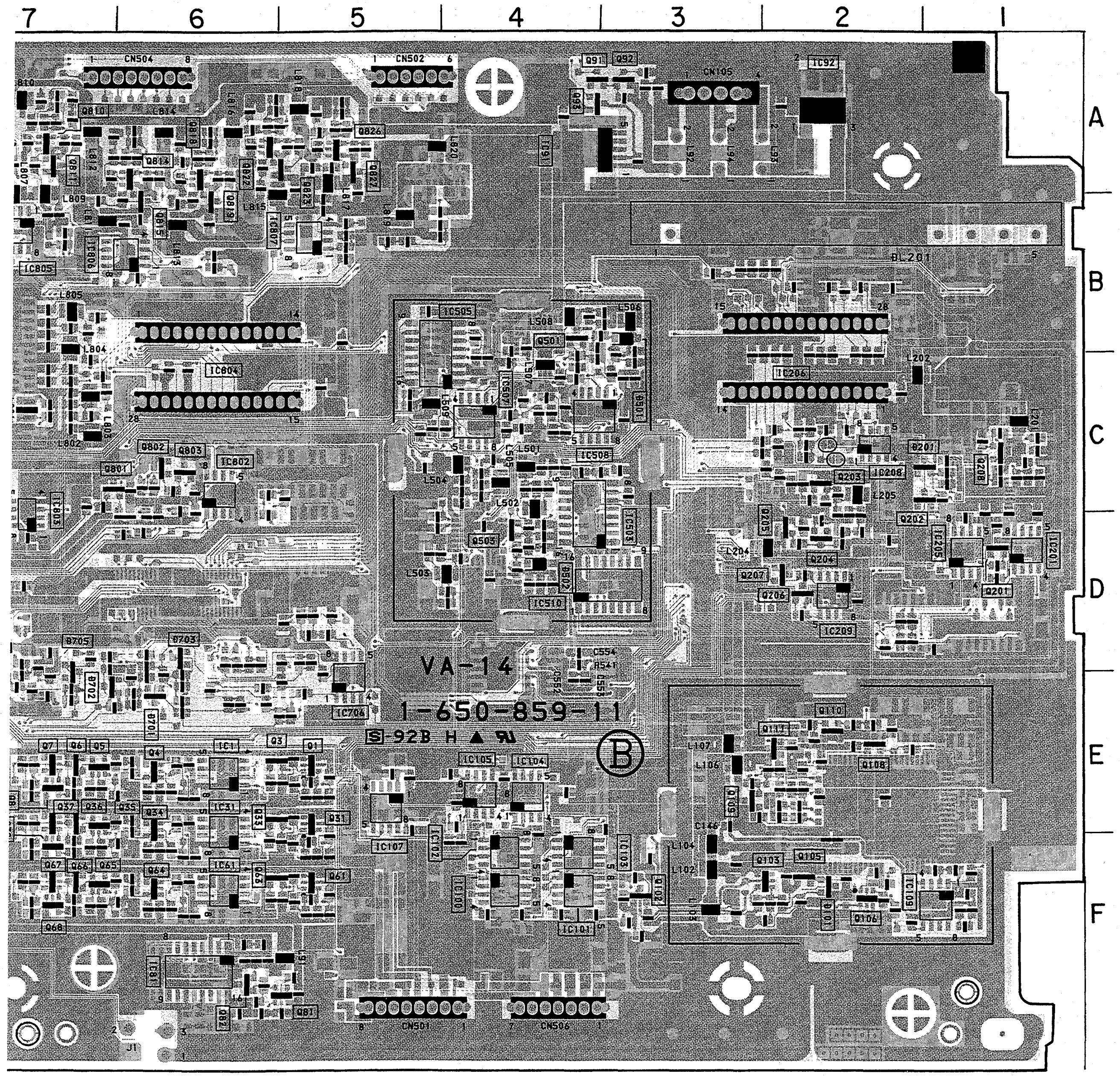
CN101	E-7	
CN102	C-7	
CN105	A-3	
CN501	F-5	
CN502	A-5	
CN504	A-6	
CN505	D-7	
CN506	F-4	
CV501	D-5	
CV502	B-3	
CV801	C-7	
D081	F-6	
D091	A-4	
D100	F-2	
D101	F-2	S
D201	C-2	S
D501	B-3	S
D701	E-6	S
D702	E-7	S
D703	D-6	S
D704	E-7	
D705	D-7	S
DL202	B-2	
DL203	B-2	
FL001	E-6	
FL031	F-6	
FL061	F-6	
FL100	E-2	
FL102	E-3	
FL103	F-3	
FL801	C-5	
FL802	D-5	
IC001	E-6	S
IC031	E-6	S
IC061	F-6	S
IC081	F-6	S
IC082	F-6	
IC091	A-3	S
IC092	A-2	S
IC100	F-4	S
IC101	F-4	S
IC102	F-4	S
IC103	F-4	S
IC104	E-4	S
IC105	E-5	S
IC107	E-5	S
IC108	E-2	
IC109	F-1	S
IC201	D-1	S
IC202	C-1	
IC203	D-2	
IC204	D-1	
IC205	D-1	S
IC206	C-2	
IC207	C-2	
IC208	C-2	S
IC209	D-2	S
IC210	C-2	
IC501	D-4	
IC502	C-4	
IC503	D-4	S
IC504	B-4	
IC505	C-5	S
IC506	B-4	
IC507	C-4	S
IC508	C-4	S
IC509	C-4	
IC510	D-3	S
IC512	E-4	
IC513	E-4	
IC701	D-7	
IC702	D-6	
IC703	D-6	
IC704	D-7	
IC705	D-5	
IC706	E-5	S
IC707	E-6	
IC708	D-6	
IC709	D-7	
IC801	C-7	
IC802	C-6	S
IC803	C-7	S
IC804	C-6	
IC805	B-7	S
IC806	B-6	S
IC807	B-5	S
IS406		
J001		
JR240		
L001	E-7	
L002	E-7	
L031	E-7	
L032	F-7	
L061	F-7	
L062	F-7	
L091	F-5	S
L092	A-3	
L093	A-3	
L094	A-3	
L100	E-3	
L101	E-3	
L102	F-3	S
L103	F-3	S
L104	F-3	S
L106	E-3	S
L107	E-3	S
L201	C-1	S
L202	C-2	S
L203	C-3	
L204	D-2	S
L205	C-2	S
L207	C-2	
L401		
L501	C-4	S
L502	C-4	S
L503	D-4	S
L504	C-4	S
L505	C-4	S
L506	B-3	S
L507	C-4	S
L508	B-4	S
L509	C-5	S
L513	C-4	
L801	C-7	S
L802	C-7	S
L803	C-7	S
L804	B-7	S
L805	B-7	S
L806	C-7	S
L807	A-7	S
L808	A-7	S
L809	A-7	S
L810	A-7	S
L811	B-7	S
L812	A-7	S
L813	B-6	S
L814	A-6	S
L815	B-6	S
L816	A-6	S
L817	A-5	S
L818	A-5	S
L819	B-5	S
L820	A-5	S
LF001	E-5	
LF031	F-5	
LF061	F-5	
LF081	F-5	
LF100	F-4	
LF101	F-4	
LF102	F-3	
LF801	A-7	
LF802	A-7	
LF803	A-6	
LF804	A-6	
FL805	A-6	
FL806	A-5	
FL807	A-5	
Q001	E-5	S
Q003	E-6	S
Q004	E-6	S
Q005	E-7	S
Q008	E-7	S
Q031	E-5	S
Q033	E-6	S
Q034	E-6	S
Q035	E-7	S
Q036	E-7	S
Q037	E-7	S
Q038	F-7	S
Q061	F-5	S
Q063	F-6	S
Q064	F-6	S
Q065	F-7	S
Q066	F-7	S
Q067	F-7	S
Q068	F-7	S
Q081	F-6	S
Q082	F-6	S
Q083	F-6	
Q084	F-6	
Q091	A-4	S
Q092	A-3	S
Q093	A-4	S
Q100	F-4	
Q101	F-4	
Q102	F-3	S
Q103	F-3	S
Q105	F-2	S
Q106	F-2	S
Q107	F-2	
Q108	E-2	S
Q109	E-3	S
Q110	E-2	S
Q111	E-2	S
Q201	D-1	S
Q202	C-2	S
Q203	C-2	S
Q204	D-2	S
Q205	D-2	S
Q206	D-2	S
Q207	D-2	S
Q501	B-4	S
Q502	C-4	
Q701	E-7	
Q801	C-7	S
Q802	C-6	S
Q803	C-6	S
Q804	C-6	
Q805	C-6	
Q806	A-7	S
Q807	A-7	S
Q808	A-7	
Q809	A-7	
Q810	A-7	S
Q811	A-7	S
Q812	A-7	
Q813	A-7	
Q814	A-6	S
Q815	B-6	S
Q816	A-6	
Q817	A-6	
Q818	A-6	S
Q819	B-6	S
Q820	A-6	
Q821	A-6	
Q822	A-6	S
Q823	A-5	S
Q824	A-5	
Q825	A-5	
Q826	A-5	S
Q827	A-5	S
Q828	A-5	
Q829	A-5	
Q830	A-4	
Q831	A-4	
X201	C-2	
X501	D-5	

S:SOLDERING SIDE

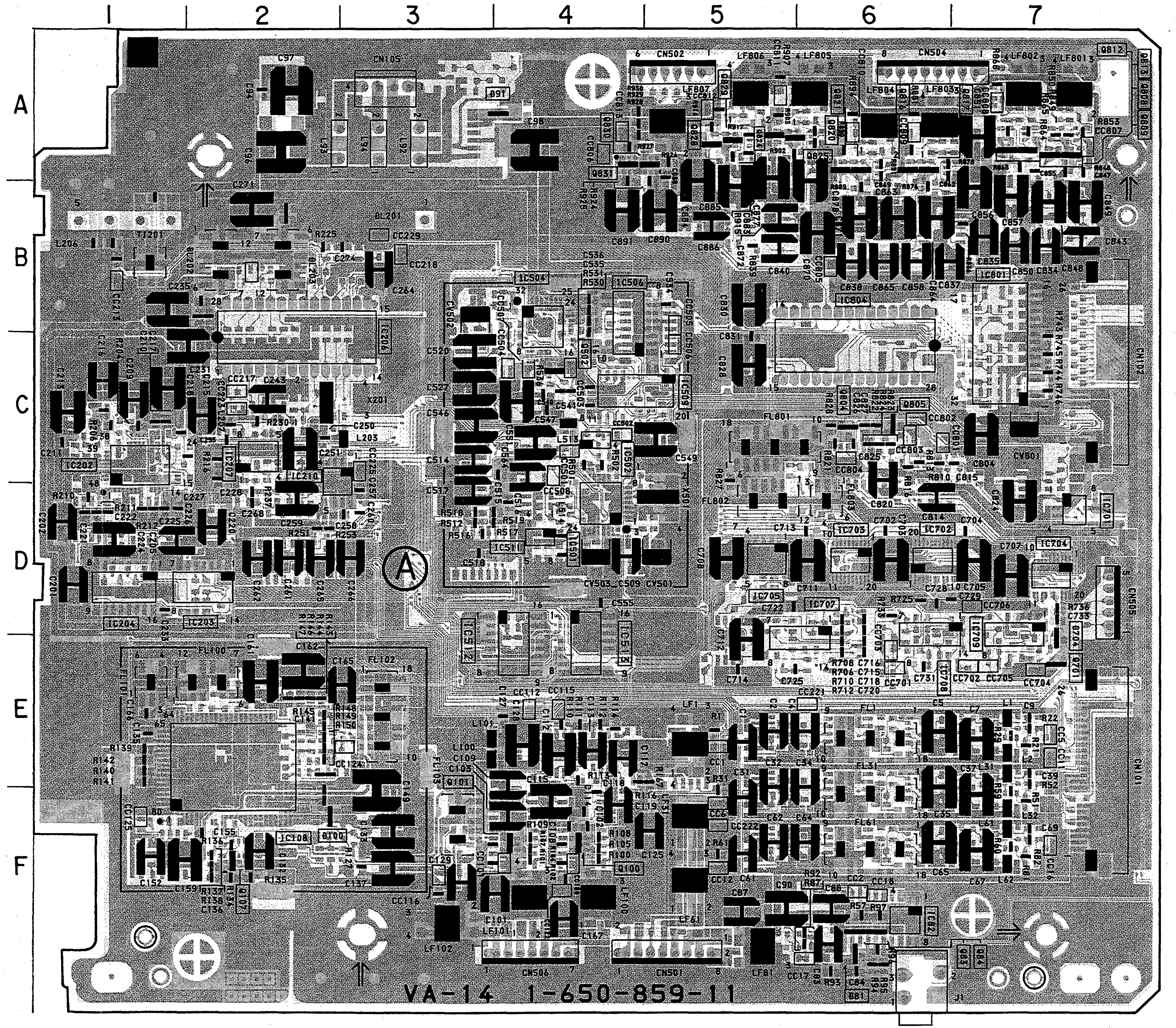


VA-14 -SOLDERING SIDE-



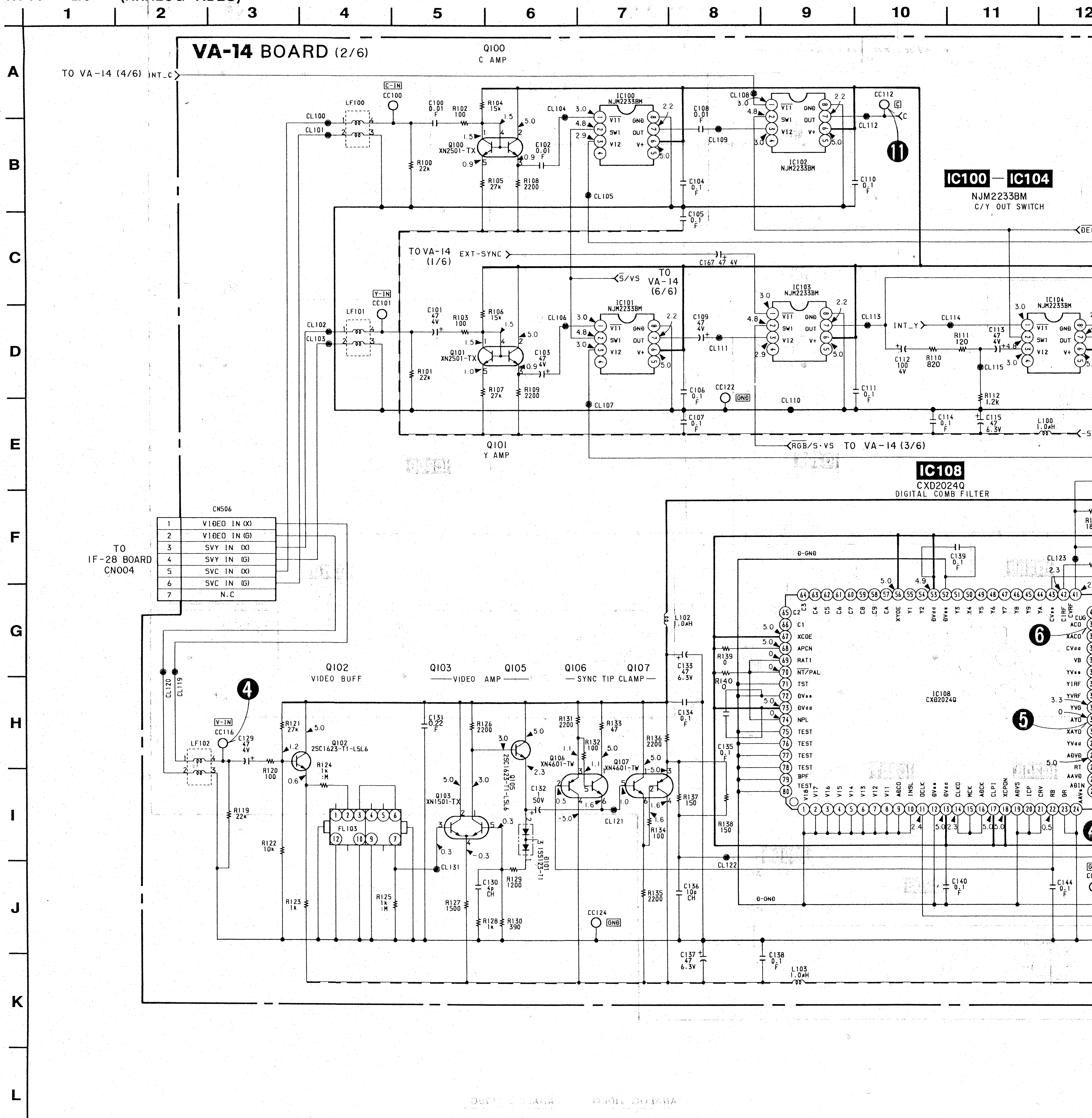

7
6
5
4
3
2
1
A
B
C
D
E
F
VA-14
1-650-859-11
B

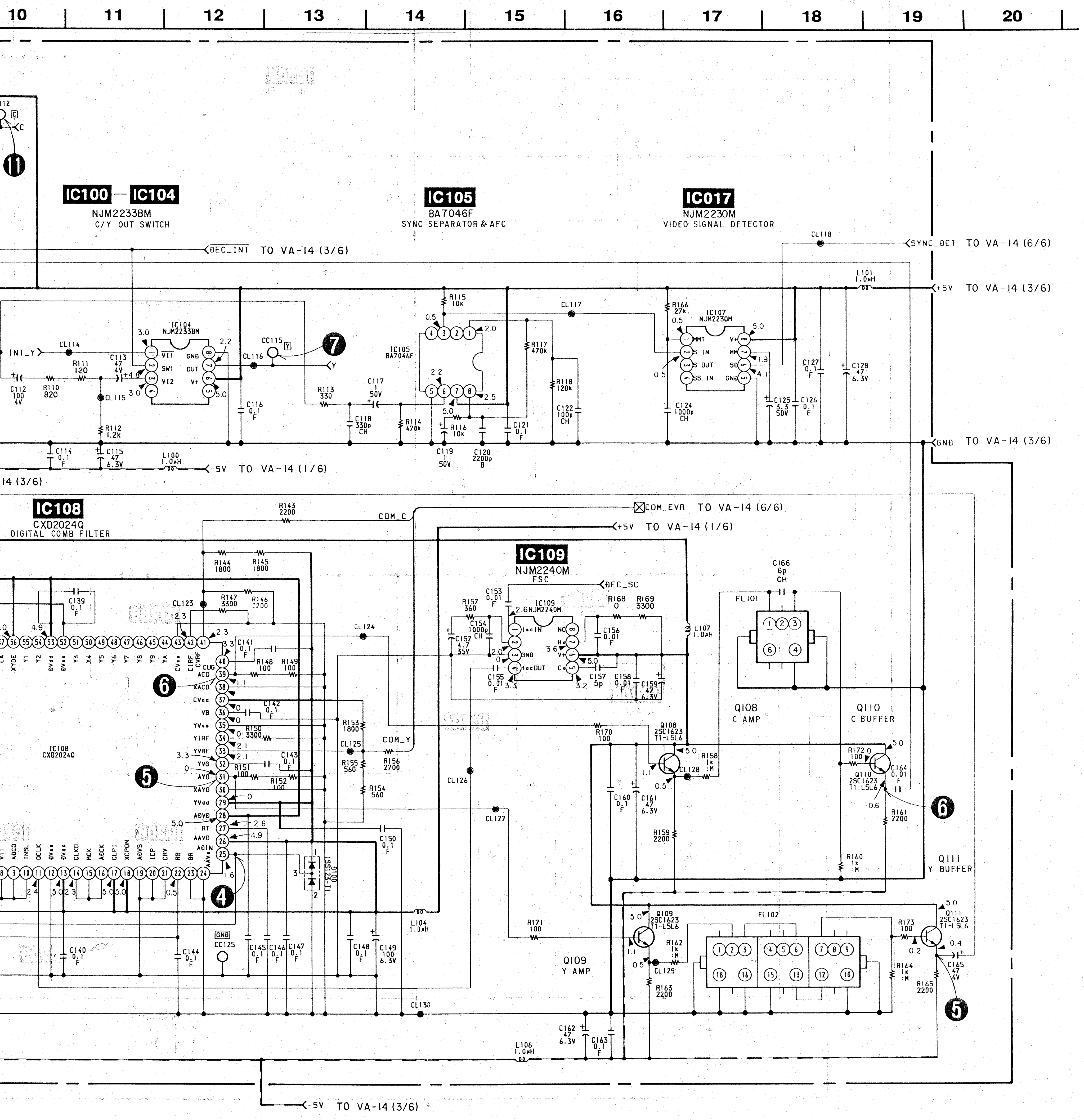
VA-14 -SOLDERING SIDE-


1
2
3
4
5
6
7
A
B
C
D
E
F
A
VA-14 1-650-859-11

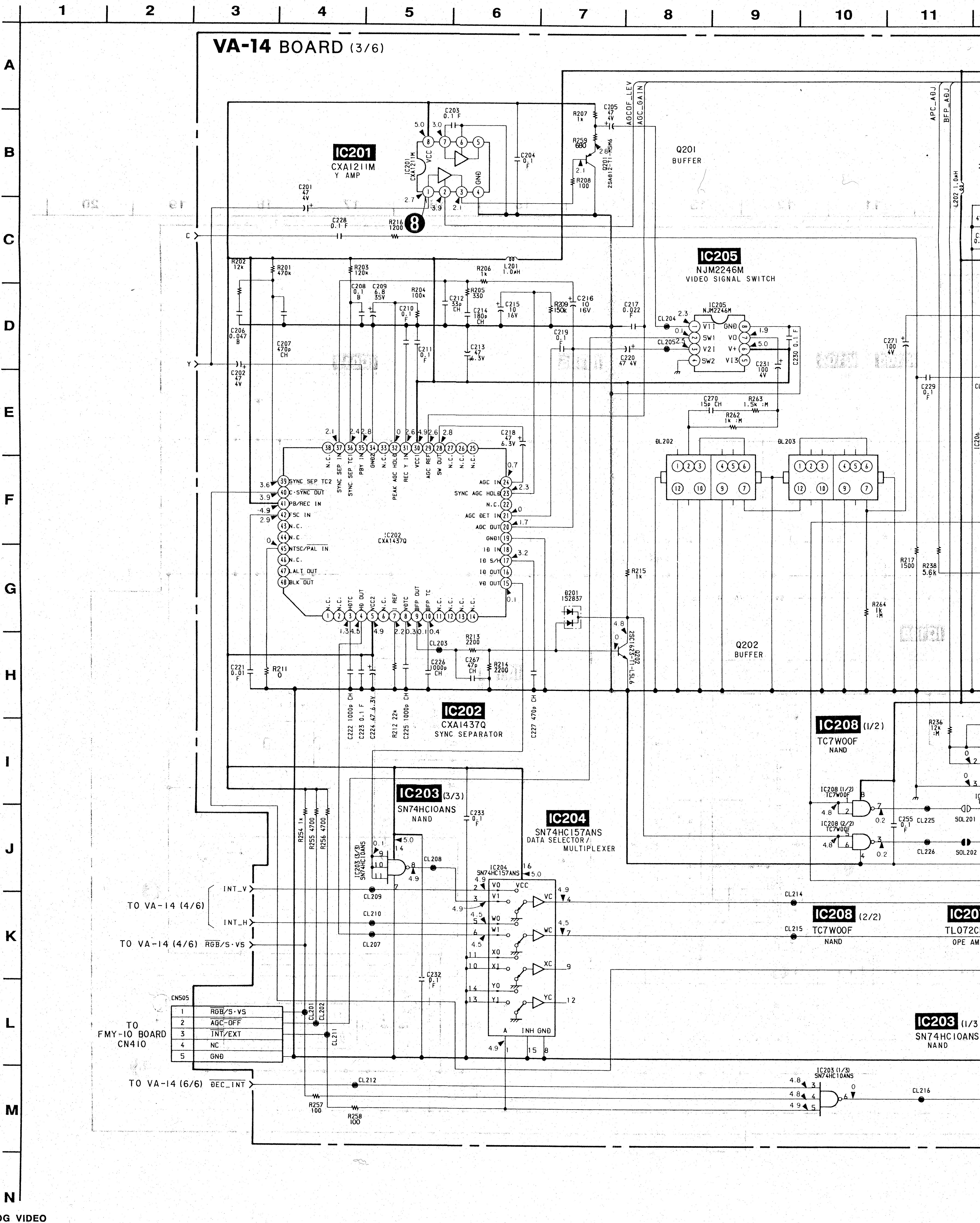
VA-14 -COMPONENT SIDE-

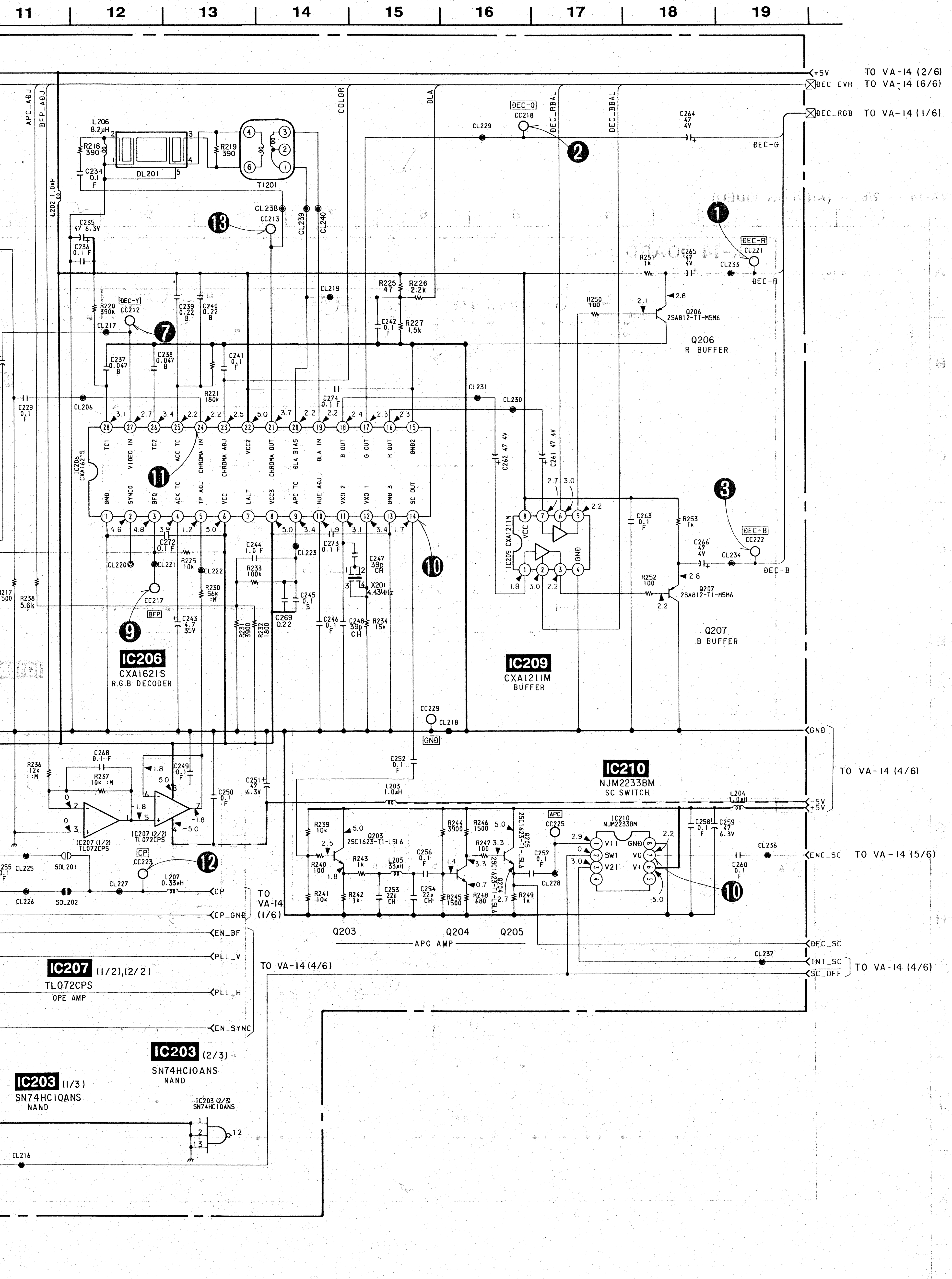
VA-14 — 2/6 — (ANALOG VIDEO)

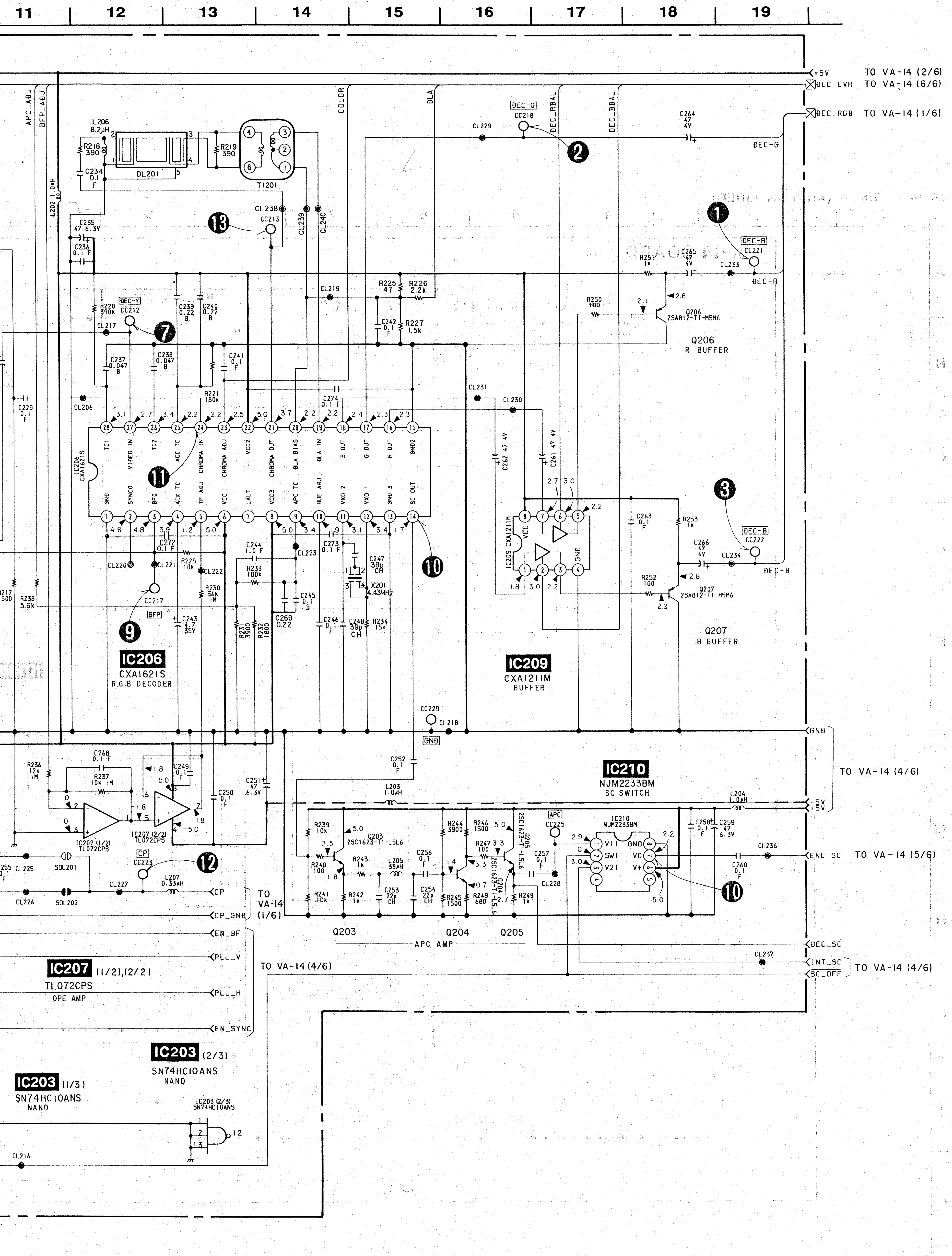

VA-14 BOARD (2/6)
1
2
3
4
5
6
7
8
9
10
11
12
A
B
C
D
E
F
G
H
I
J
K
L
TO VA-14 (4/6) INT_C
Q100
C AMP
Q100
XN2501-TX
IC100
NJM2233BM
IC102
NJM2233BM
CL108
CC112
C-IN
CC100
LF100
CL100
CL101
C100 0.01 F
R102 100
R104 15k
R100 22k
R105 27k
R108 2200
C102 0.01 F
CL104
CL105
C108 0.01 F
CL109
C104 0.1 F
C105 0.1 F
CL112
C110 0.1 F
⑪
IC100 — IC104
NJM2233BM
C/Y OUT SWITCH
TO VA-14 (1/6)
EXT-SYNC
C167 47 4V
S/VS
TO VA-14 (6/6)
Y-IN
CC101
LF101
CL102
CL103
C101 47 4V
R103 100
R106 15k
R101 22k
Q101
XN2501-TX
R107 27k
R109 2200
C103 47 4V
CL106
IC101
NJM2233BM
C109 47 4V
CL111
C106 0.1 F
C107 0.1 F
CC122
GND
CL107
CL110
IC103
NJM2233BM
CL113
INT_Y
CL114
R111 120
C113 47 4V
C112 100 4V
R110 820
CL115
R112 1.2k
C111 0.1 F
C114 0.1 F
C115 47 6.3V
L100 1.0µH
IC104
NJM2233BM
Q101
Y AMP
RGB/S·VS TO VA-14 (3/6)
IC108
CXD2024Q
DIGITAL COMB FILTER
CN506
1 VIDEO IN (X)
2 VIDEO IN (G)
3 SVY IN (X)
4 SVY IN (G)
5 SVC IN (X)
6 SVC IN (G)
7 N.C
TO IF-28 BOARD CN004
D-GND
C139 0.1 F
CL123
L102 1.0µH
C133 47 6.3V
R139 0
R140 0
C134 0.1 F
C135 0.1 F
R138 150
CL122
C140 0.1 F
C144 0.1 F
⑥
⑤
④
IC108
CXD2024Q
C2
C1
XCOE
APCN
RAT1
NT/PAL
TST
DVss
DVdd
NPL
TEST
BPF
Q102
VIDEO BUFF
Q103
Q105
VIDEO AMP
Q106
Q107
SYNC TIP CLAMP
CL120
CL119
V-IN
CC116
C129 47 4V
LF102
R120 100
R119 22k
R121 27k
Q102
2SC1623-T1-L5L6
R124 1k :M
R122 10k
R123 1k
FL103
R125 1k :M
C131 0.22 F
R126 2200
Q105
2SC1623-T1-L5L6
Q103
XN1501-TX
CL131
C130 4p CH
R127 1500
R128 1k
R129 1200
R130 390
C132 1 50V
D101
1SS123-T1
R131 2200
R132 100
R133 47
Q106
XN4601-TW
Q107
XN4601-TW
CL121
R136 2200
R137 150
R134 100
R135 2200
C136 10p CH
CC124
GND
C137 47 6.3V
C138 0.1 F
L103 1.0µH


10
11
12
13
14
15
16
17
18
19
20
IC100 — IC104
NJM2233BM
C/Y OUT SWITCH
IC105
BA7046F
SYNC SEPARATOR & AFC
IC017
NJM2230M
VIDEO SIGNAL DETECTOR
DEC_INT TO VA-14 (3/6)
SYNC_DET TO VA-14 (6/6)
+5V TO VA-14 (3/6)
GND TO VA-14 (3/6)
-5V TO VA-14 (1/6)
14 (3/6)
IC108
CXD2024Q
DIGITAL COMB FILTER
COM_EVR TO VA-14 (6/6)
+5V TO VA-14 (1/6)
IC109
NJM2240M
FSC
DEC_SC
COM_C
COM_Y
FL101
FL102
Q108
C AMP
Q110
C BUFFER
Q111
Y BUFFER
Q109
Y AMP
2SC1623
T1-L5L6
D100
1SS226-T1
-5V TO VA-14 (3/6)
INT_Y
CL114
CL115
CL116
CL117
CL118
CL123
CL124
CL125
CL126
CL127
CL128
CL129
CL130
CC115
CC125
L100 1.0μH
L101 1.0μH
L104 1.0μH
L106 1.0μH
L107 1.0μH
⓫
❼
❻
❺
❹

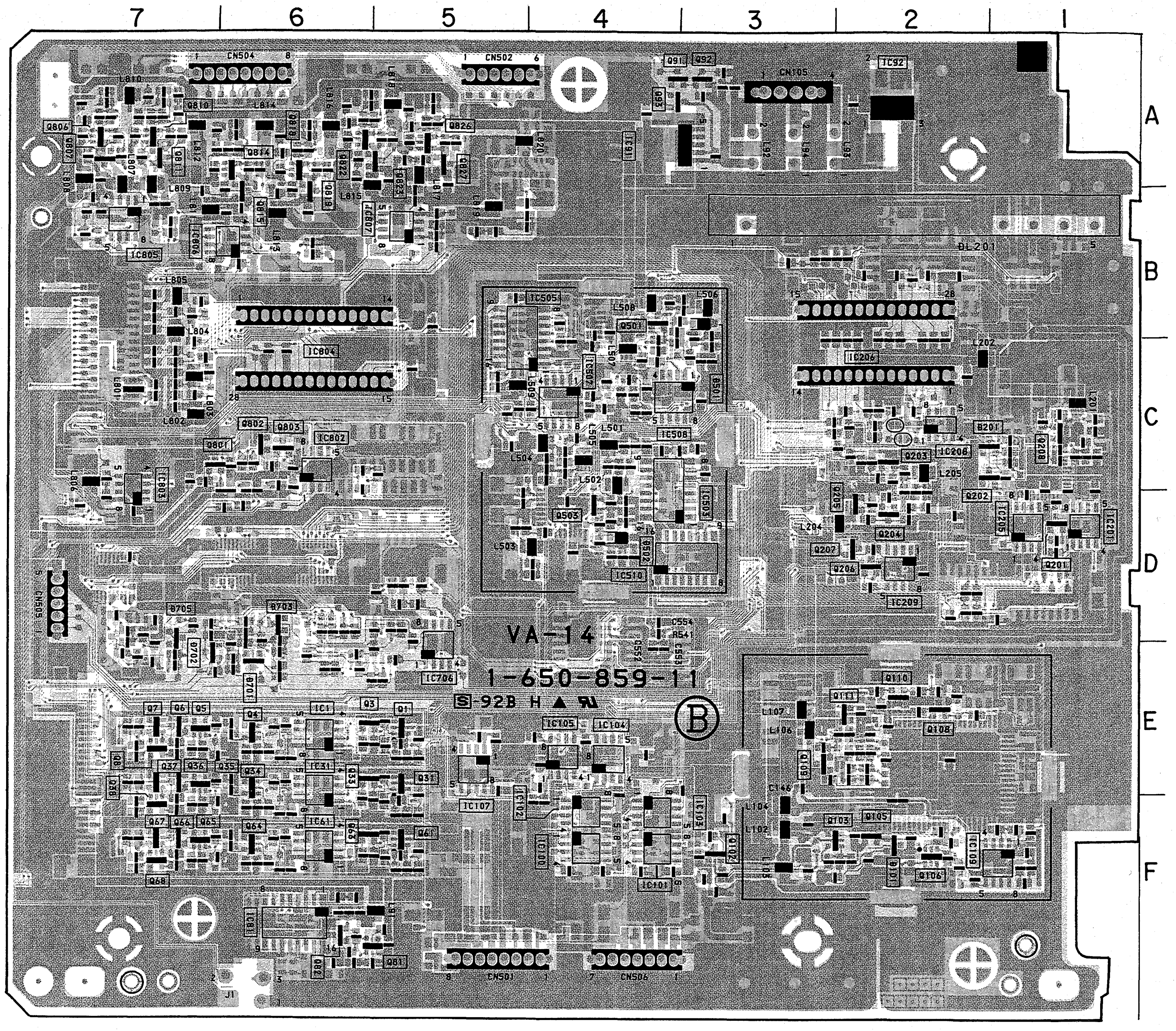
VA-14 — 3/6 — (ANALOG VIDEO)


VA-14 BOARD (3/6)
IC201
CXA1211M
Y AMP
Q201
BUFFER
IC205
NJM2246M
VIDEO SIGNAL SWITCH
IC202
CXA1437Q
SYNC SEPARATOR
Q202
BUFFER
IC203 (3/3)
SN74HC10ANS
NAND
IC204
SN74HC157ANS
DATA SELECTOR / MULTIPLEXER
IC208 (1/2)
TC7W00F
NAND
IC208 (2/2)
TC7W00F
NAND
IC203 (1/3)
SN74HC10ANS
NAND
TL072C
OPE AM
TO VA-14 (4/6)
INT_V
INT_H
TO VA-14 (4/6) RGB/S·VS
TO FMY-10 BOARD CN410
CN505
1 RGB/S·VS
2 AGC-OFF
3 INT/EXT
4 NC
5 GND
TO VA-14 (6/6) DEC_INT
AGCOF_LEV
AGC_GAIN
APC_ADJ
BFP_ADJ
BL202
BL203
D201
1SS237
C
Y
SYNC SEP TC2
C-SYNC OUT
PB/REC IN
FSC IN
N.C.
NTSC/PAL IN
ALT OUT
BLK OUT
AGC IN
SYNC AGC HOLD
AGC DET IN
AGC OUT
GND1
ID IN
ID S/H
ID OUT
VD OUT
SOL201
SOL202
CL216

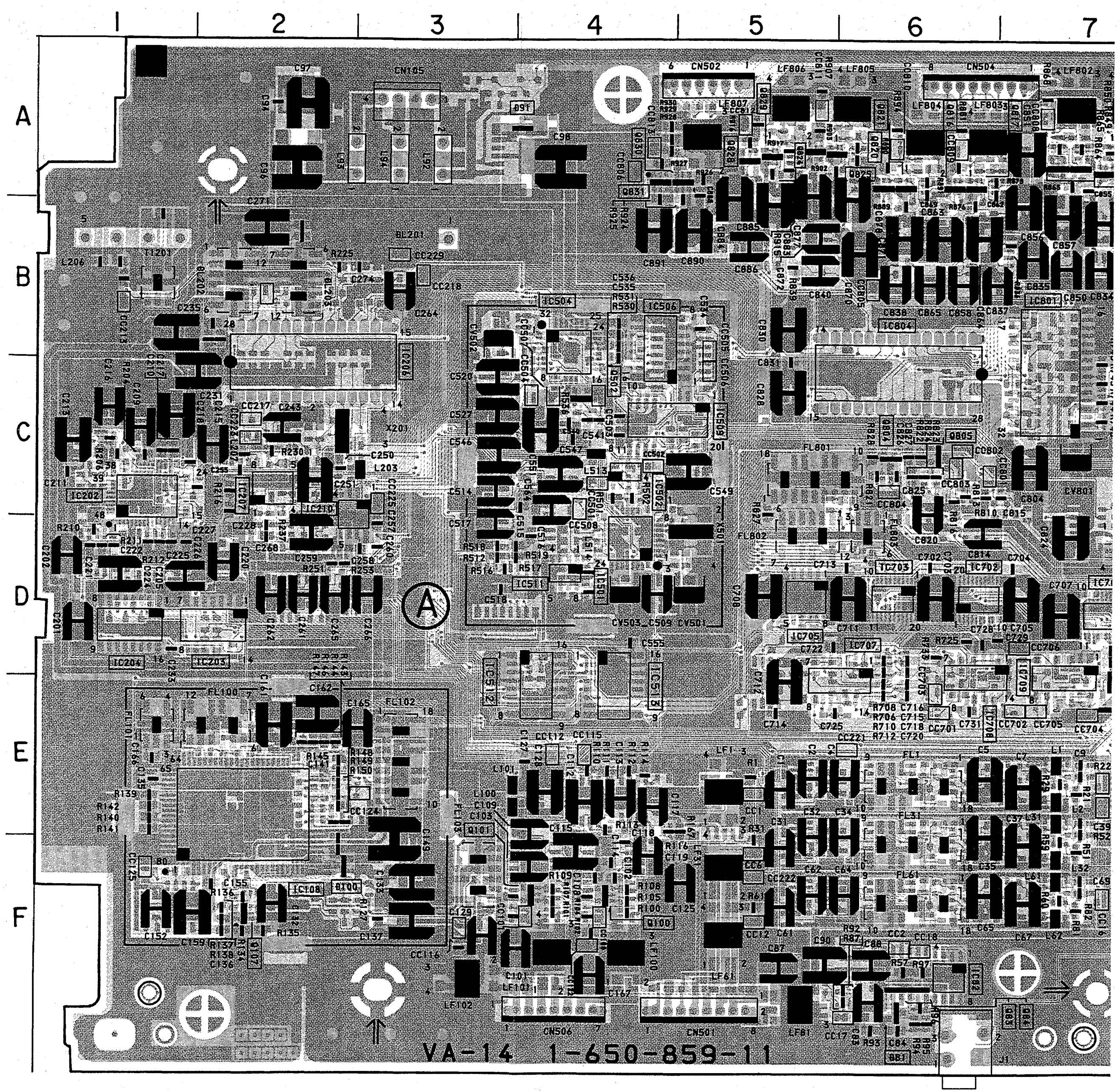

11
12
13
14
15
16
17
18
19
+5V TO VA-14 (2/6)
DEC_EVR TO VA-14 (6/6)
DEC_RGB TO VA-14 (1/6)
APC_ADJ
BFP_ADJ
COLOR
DLA
DEC_RBAL
DEC_BBAL
DEC-G
DEC-R
DEC-B
L206 8.2μH
R218 390
C234 0.1 F
DL201
R219 390
T1201
CL238
CC213
CL239
CL240
L202 1.0μH
C235 47 6.3V
C236 0.1 F
CC218
CL229
C264 47 4V
CC221
CL233
R251 1k
C265 47 4V
R250 100
Q206 2SA812-T1-M5M6
Q206 R BUFFER
R225 47
R226 2.2k
CL219
C242 0.1 F
R227 1.5k
R220 390k
CC212
CL217
C239 0.22 B
C240 0.22 B
C237 0.047 B
C238 0.047 B
C241 0.1 F
R221 180k
C229 0.1 F
CL206
C274 0.1 F
CL231
CL230
C262 47 4V
C261 47 4V
TC1
VIDEO IN
TC2
ACC TC
CHROMA IN
CHROMA ADJ
VCC2
CHROMA OUT
DLA BIAS
DLA IN
B OUT
G OUT
R OUT
GND2
GND
SYNC0
BFO
ACK TC
TP ADJ
VCC
LALT
VCC3
APC TC
HUE ADJ
VXO 2
VXO 1
GND 3
SC OUT
IC206 CXA1621S
C272 0.1 F
CL220
CL221
R225 10k
CL222
R230 56k
CC217
BFP
C243 4.7 35V
C244 1.0 F
R233 100k
CL223
C245 0.1 B
R231 3900
R232 1800
C269 0.22
C273 0.1 F
C247 39p CH
X201 4.43MHz
C246 0.1 F
C248 39p CH
R234 15k
IC206
CXA1621S
R.G.B DECODER
IC209 CXA1211M
VCC
GND
C263 0.1 F
R253 1k
C266 47 4V
CL234
CC222
R252 100
Q207 2SA812-T1-M5M6
Q207 B BUFFER
IC209
CXA1211M
BUFFER
CC229
CL218
GND
C252 0.1 F
IC210
NJM2233BM
SC SWITCH
TO VA-14 (4/6)
-5V
+5V
L203 1.0μH
L204 1.0μH
R239 10k
Q203 2SC1623-T1-L5L6
R244 3900
R246 1500
R247 100
Q205 2SC1623-T1-L5L6
APC
CC225
IC210 NJM2233BM
V11
SW1
V21
GND
VO
V+
C258 0.1 F
C259 47 6.3V
CL236
ENC_SC TO VA-14 (5/6)
C260 0.1 F
R240 100
R243 1k
L205 33μH
C256 0.1 F
Q204 2SC1623-T1-L5L6
C257 0.1 F
CL228
R241 10k
R242 1k
C253 22p CH
C254 22p CH
R245 1500
R248 680
R249 1k
Q203
Q204
Q205
APC AMP
DEC_SC
CL237
INT_SC
SC_OFF
TO VA-14 (4/6)
R236 12k :M
C268 0.1 F
R237 10k :M
C249 0.1 F
IC207 (1/2) TL072CPS
IC207 (2/2) TL072CPS
C250 0.1 F
C251 47 6.3V
CL225
SOL201
CC223
CP
L207 0.33μH
CL226
SOL202
CL227
CP
CP_GND
EN_BF
PLL_V
PLL_H
EN_SYNC
TO VA-14 (1/6)
TO VA-14 (4/6)
IC207 (1/2),(2/2)
TL072CPS
OPE AMP
IC203 (2/3)
SN74HC10ANS
NAND
IC203 (1/3)
SN74HC10ANS
NAND
IC203 (2/3) SN74HC10ANS
CL216
R217 1500
R238 5.6k
❶
❷
❸
❼
❾
❿
⓫
⓬
⓭


11
12
13
14
15
16
17
18
19
+5V TO VA-14 (2/6)
DEC_EVR TO VA-14 (6/6)
DEC_RGB TO VA-14 (1/6)
APC_ADJ
BFP_ADJ
COLOR
DLA
DEC-G
CC218
CL229
DEC_RBAL
DEC_BBAL
C264 47 4V
DEC-G
L206 8.2μH
R218 390
C234 0.1 F
DL201
R219 390
T1201
L202 1.0μH
C235 47 6.3V
C236 0.1 F
CL238
CC213
CL239
CL240
DEC-R
CC221
R251 1k
C265 47 4V
CL233
DEC-R
CL219
R225 47
R226 2.2k
R250 100
Q206 2SA812-T1-M5M6
Q206 R BUFFER
DEC-Y
CC212
R220 390k
CL217
C239 0.22 B
C240 0.22 B
C242 0.1 F
R227 1.5k
C237 0.047 B
C238 0.047 B
C241 0.1 F
R221 180k
C229 0.1 F
CL206
C274 0.1 F
CL231
CL230
C262 47 4V
C261 47 4V
TC1
VIDEO IN
TC2
ACC TC
CHROMA IN
CHROMA ADJ
VCC2
CHROMA OUT
DLA BIAS
DLA IN
B OUT
G OUT
R OUT
GND2
GND
SYNCO
BFO
ACK TC
TP ADJ
VCC
LALT
VCC3
APC TC
HUE ADJ
VXO 2
VXO 1
GND 3
SC OUT
IC206 CXA1621S
IC209 CXA1211M
C263 0.1 F
R253 1k
DEC-B
CC222
C266 47 4V
CL234
DEC-B
R252 100
Q207 2SA812-T1-M5M6
Q207 B BUFFER
CL220
CL221
C272 0.1 F
R225 10k
CL222
C244 1.0 F
CL223
R233 100k
C273 0.1 F
C247 39p CH
X201 4.43MHz
CC217
BFP
R230 56k
C243 4.7 35V
C245 0.1 B
C269 0.22
R231 3900
R232 1800
C246 0.1 F
C248 39p CH
R234 15k
R217 1500
R238 5.6k
IC206
CXA1621S
R.G.B DECODER
IC209
CXA1211M
BUFFER
CC229
CL218
GND
IC210
NJM2233BM
SC SWITCH
TO VA-14 (4/6)
R236 12k :M
C268 0.1 F
R237 10k :M
C249 0.1 F
C250 0.1 F
C251 47 6.3V
C252 0.1 F
L203 1.0μH
L204 1.0μH
-5V
+5V
IC207 (1/2) TL072CPS
IC207 (2/2) TL072CPS
CP
CC223
L207 0.33μH
R239 10k
Q203 2SC1623-T1-L5L6
R240 100
R243 1k
L205 33μH
C256 0.1 F
R244 3900
R246 1500
R247 100
Q205 2SC1623-T1-L5L6
Q204 2SC1623-T1-L5L6
APC
CC225
C257 0.1 F
CL228
IC210 NJM2233BM
V11
SW1
V21
GND
VO
V+
C258 0.1 F
C259 47 6.3V
CL236
C260 0.1 F
ENC_SC TO VA-14 (5/6)
R241 10k
R242 1k
C253 22p CH
C254 22p CH
R245 1500
R248 680
R249 1k
Q203
Q204
Q205
APC AMP
C255 .1 F
CL225
SOL201
CL226
SOL202
CL227
CP
CP_GND
EN_BF
PLL_V
PLL_H
EN_SYNC
TO VA-14 (1/6)
TO VA-14 (4/6)
DEC_SC
CL237
INT_SC
SC_OFF
TO VA-14 (4/6)
IC207 (1/2),(2/2)
TL072CPS
OPE AMP
IC203 (2/3)
SN74HC10ANS
NAND
IC203 (1/3)
SN74HC10ANS
NAND
IC203 (2/3) SN74HC10ANS
CL216
1
2
3
7
9
10
11
12
13

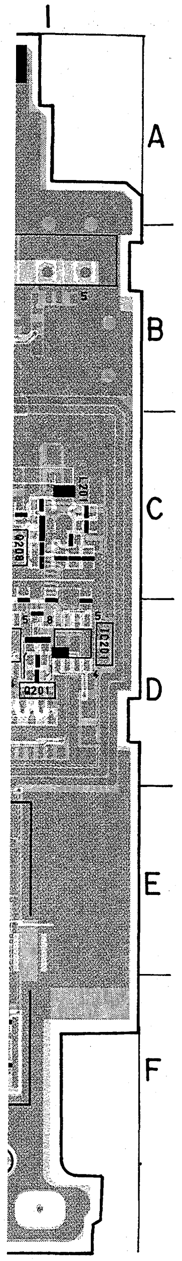
VA-14 (ANALOG VIDEO)


7
6
5
4
3
2
1
A
B
C
D
E
F
VA-14
1-650-859-11
S-92B H
B
CN504
CN502
CN105
IC92
BL201
IC804
IC206
CN501
CN506
J1

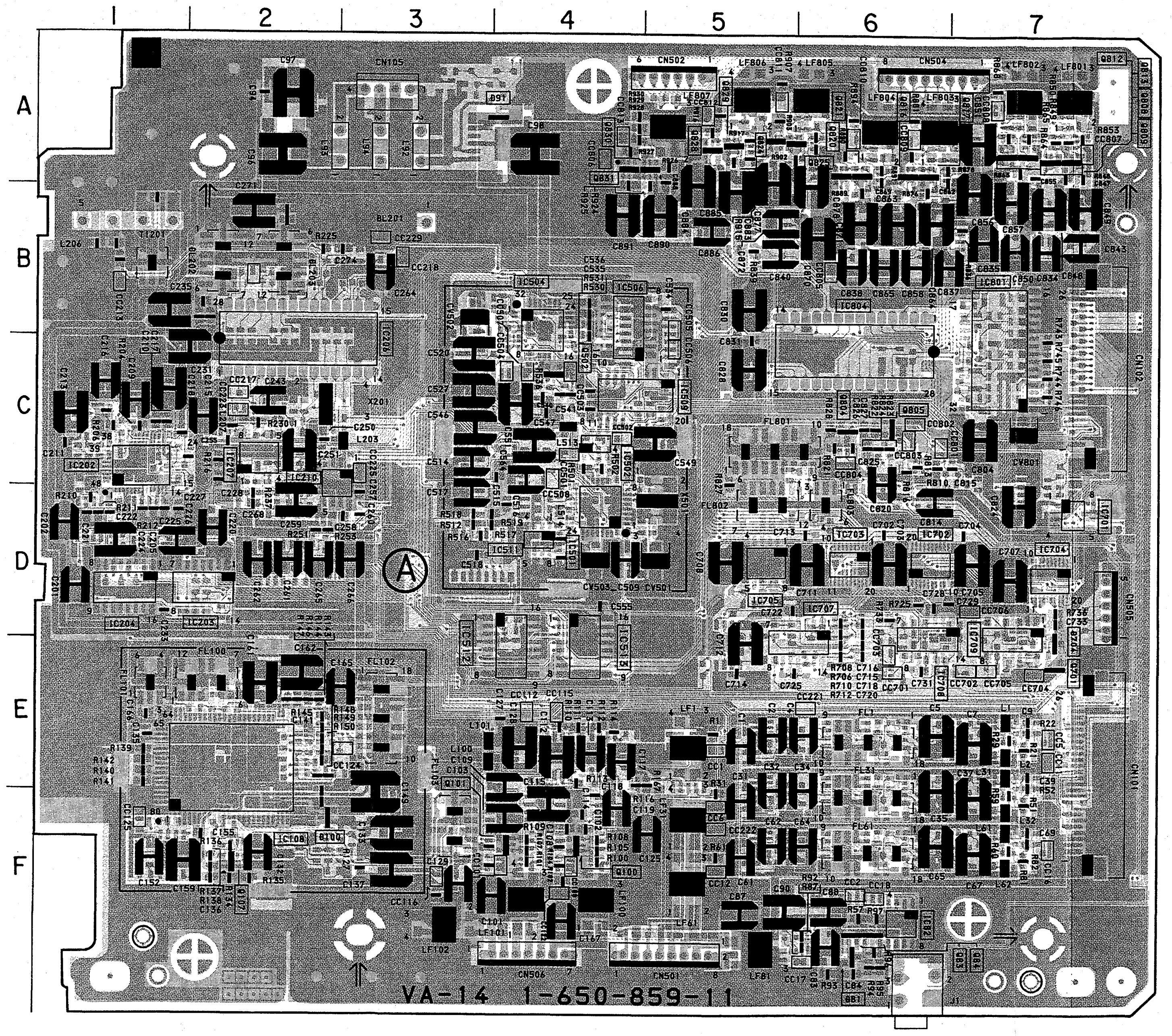
VA-14 -SOLDERING SIDE-


1
2
3
4
5
6
7
A
B
C
D
E
F
A
CN105
CN502
CN504
BL201
IC804
CN506
CN501
J1
VA-14 1-650-859-11

VA-14 -COMPON



RING SIDE-



VA-14 -COMPONENT SIDE-

VA-14 BOARD

CN101	E-7	
CN102	C-7	
CN105	A-3	
CN501	F-5	
CN502	A-5	
CN504	A-6	
CN505	D-7	
CN506	F-4	
CV501	D-5	
CV502	B-3	
CV801	C-7	
D081	F-6	
D091	A-4	
D100	F-2	
D101	F-2	S
D201	C-2	S
D501	B-3	S
D701	E-6	S
D702	E-7	S
D703	D-6	S
D704	E-7	
D705	D-7	S
DL202	B-2	
DL203	B-2	
FL001	E-6	
FL031	F-6	
FL061	F-6	
FL100	E-2	
FL102	E-3	
FL103	F-3	
FL801	C-5	
FL802	D-5	
IC001	E-6	S
IC031	E-6	S
IC061	F-6	S
IC081	F-6	S
IC082	F-6	
IC091	A-3	S
IC092	A-2	S
IC100	F-4	S
IC101	F-4	S
IC102	F-4	S
IC103	F-4	S
IC104	E-4	S
IC105	E-5	S
IC107	E-5	S
IC108	E-2	
IC109	F-1	S
IC201	D-1	S
IC202	C-1	
IC203	D-2	
IC204	D-1	
IC205	D-1	S
IC206	C-2	
IC207	C-2	
IC208	C-2	S
IC209	D-2	S
IC210	C-2	
IC501	D-4	
IC502	C-4	
IC503	D-4	S
IC504	B-4	
IC505	C-5	S
IC506	B-4	
IC507	C-4	S
IC508	C-4	S
IC509	C-4	
IC510	D-3	S
IC512	E-4	
IC513	E-4	
IC701	D-7	
IC702	D-6	
IC703	D-6	
IC704	D-7	
IC705	D-5	
IC706	E-5	S
IC707	E-6	
IC708	D-6	
IC709	D-7	
IC801	C-7	
IC802	C-6	S
IC803	C-7	S
IC804	C-6	
IC805	B-7	S
IC806	B-6	S
IC807	B-5	S
IS406		
J001		
JR240		
L001	E-7	
L002	E-7	
L031	E-7	
L032	F-7	
L061	F-7	
L062	F-7	
L091	F-5	S
L092	A-3	
L093	A-3	
L094	A-3	
L100	E-3	
L101	E-3	
L102	F-3	S
L103	F-3	S
L104	F-3	S
L106	E-3	S
L107	E-3	S
L201	C-1	S
L202	C-2	S
L203	C-3	
L204	D-2	S
L205	C-2	S
L207	C-2	
L401		
L501	C-4	S
L502	C-4	S
L503	D-4	S
L504	C-4	S
L505	C-4	S
L506	B-3	S
L507	C-4	S
L508	B-4	S
L509	C-5	S
L513	C-4	
L801	C-7	S
L802	C-7	S
L803	C-7	S
L804	B-7	S
L805	B-7	S
L806	C-7	S
L807	A-7	S
L808	A-7	S
L809	A-7	S
L810	A-7	S
L811	B-7	S
L812	A-7	S
L813	B-6	S
L814	A-6	S
L815	B-6	S
L816	A-6	S
L817	A-5	S
L818	A-5	S
L819	B-5	S
L820	A-5	S
LF001	E-5	
LF031	F-5	
LF061	F-5	
LF081	F-5	
LF100	F-4	
LF101	F-4	
LF102	F-3	
LF801	A-7	
LF802	A-7	
LF803	A-6	
LF804	A-6	
FL805	A-6	
FL806	A-5	
FL807	A-5	
Q001	E-5	S
Q003	E-6	S
Q004	E-6	S
Q005	E-7	S
Q008	E-7	S
Q031	E-5	S
Q033	E-6	S
Q034	E-6	S
Q035	E-7	S
Q036	E-7	S
Q037	E-7	S
Q038	F-7	S
Q061	F-5	S
Q063	F-6	S
Q064	F-6	S
Q065	F-7	S
Q066	F-7	S
Q067	F-7	S
Q068	F-7	S
Q081	F-6	S
Q082	F-6	S
Q083	F-6	
Q084	F-6	
Q091	A-4	S
Q092	A-3	S
Q093	A-4	S
Q100	F-4	
Q101	F-4	
Q102	F-3	S
Q103	F-3	S
Q105	F-2	S
Q106	F-2	S
Q107	F-2	
Q108	E-2	S
Q109	E-3	S
Q110	E-2	S
Q111	E-2	S
Q201	D-1	S
Q202	C-2	S
Q203	C-2	S
Q204	D-2	S
Q205	D-2	S
Q206	D-2	S
Q207	D-2	S
Q501	B-4	S
Q502	C-4	
Q701	E-7	
Q801	C-7	S
Q802	C-6	S
Q803	C-6	S
Q804	C-6	
Q805	C-6	
Q806	A-7	S
Q807	A-7	S
Q808	A-7	
Q809	A-7	
Q810	A-7	S
Q811	A-7	S
Q812	A-7	
Q813	A-7	
Q814	A-6	S
Q815	B-6	S
Q816	A-6	
Q817	A-6	
Q818	A-6	S
Q819	B-6	S
Q820	A-6	
Q821	A-6	
Q822	A-6	S
Q823	A-5	S
Q824	A-5	
Q825	A-5	
Q826	A-5	S
Q827	A-5	S
Q828	A-5	
Q829	A-5	
Q830	A-4	
Q831	A-4	
X201	C-2	
X501	D-5	

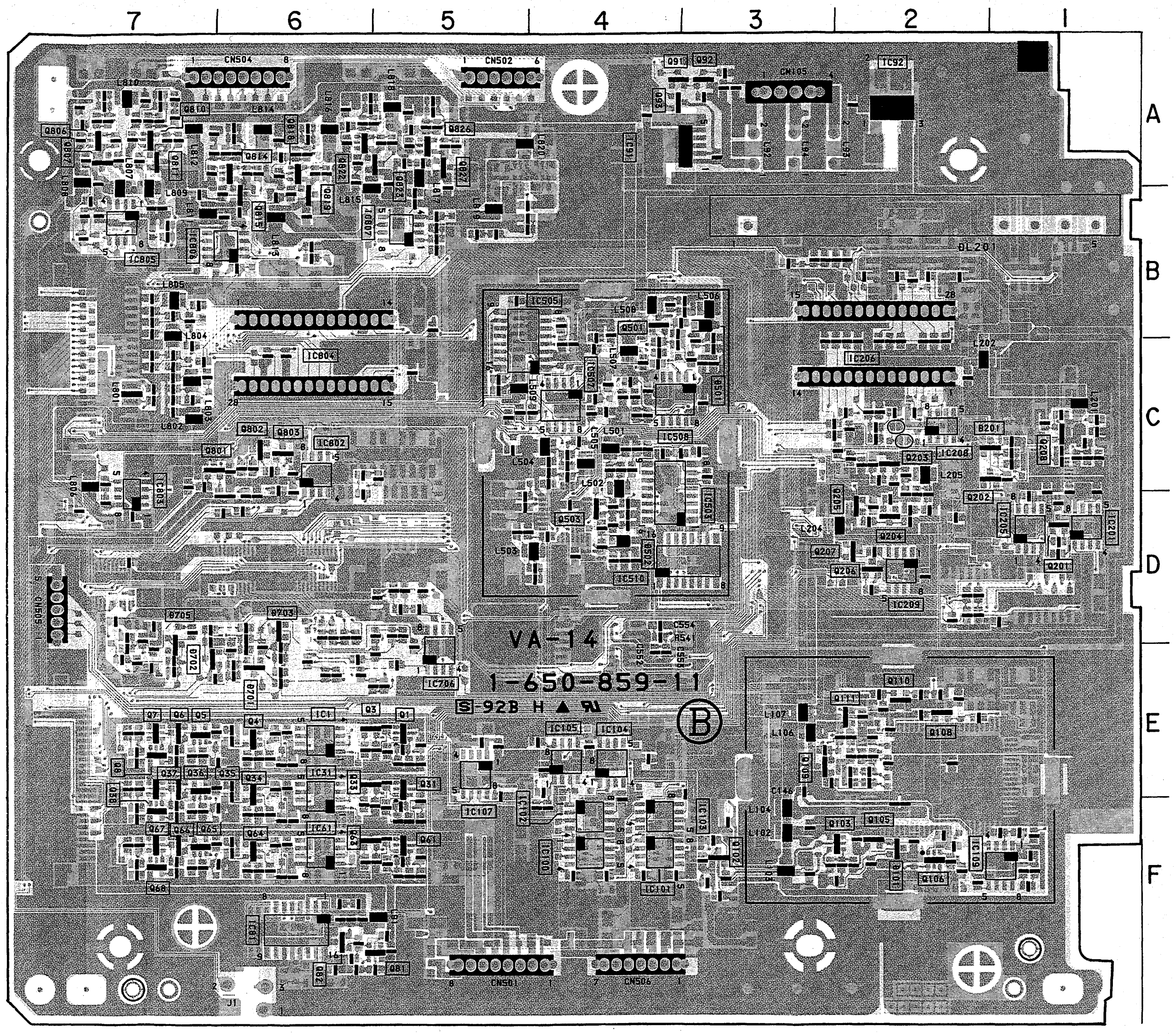
S:SOLDERING SIDE

VA-14 (ANALOG VIDEO)

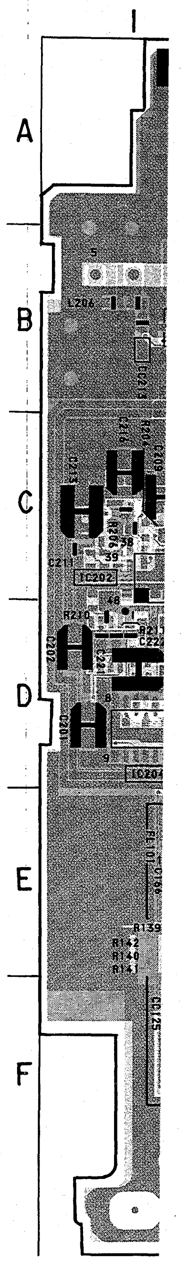
VA-14 BOARD

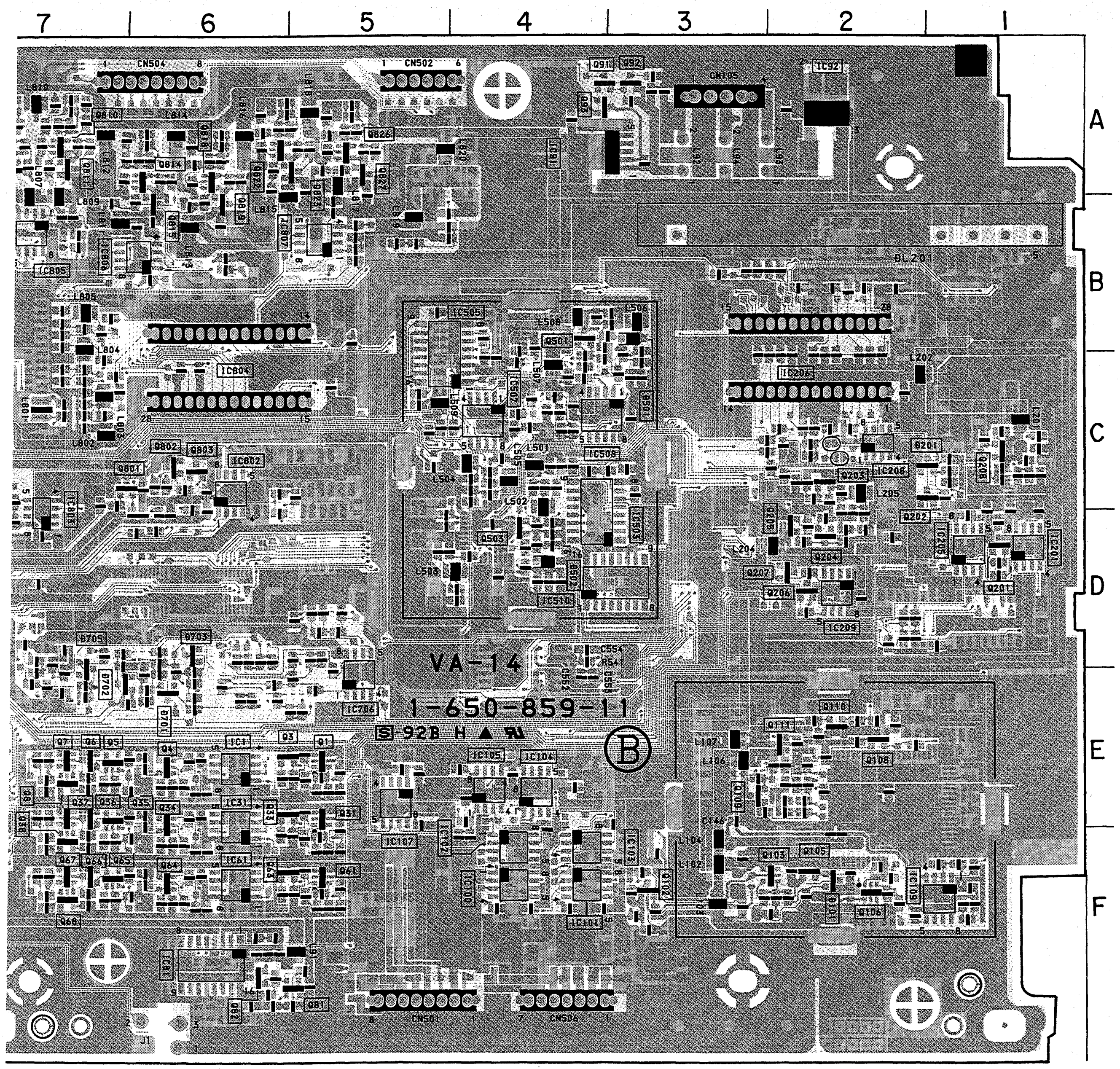
CN101	E-7	
CN102	C-7	
CN105	A-3	
CN501	F-5	
CN502	A-5	
CN504	A-6	
CN505	D-7	
CN506	F-4	
CV501	D-5	
CV502	B-3	
CV801	C-7	
D081	F-6	
D091	A-4	
D100	F-2	
D101	F-2	S
D201	C-2	S
D501	B-3	S
D701	E-6	S
D702	E-7	S
D703	D-6	S
D704	E-7	
D705	D-7	S
DL202	B-2	
DL203	B-2	
FL001	E-6	
FL031	F-6	
FL061	F-6	
FL100	E-2	
FL102	E-3	
FL103	F-3	
FL801	C-5	
FL802	D-5	
IC001	E-6	S
IC031	E-6	S
IC061	F-6	S
IC081	F-6	S
IC082	F-6	
IC091	A-3	S
IC092	A-2	S
IC100	F-4	S
IC101	F-4	S
IC102	F-4	S
IC103	F-4	S
IC104	E-4	S
IC105	E-5	S
IC107	E-5	S
IC108	E-2	
IC109	F-1	S
IC201	D-1	S
IC202	C-1	
IC203	D-2	
IC204	D-1	
IC205	D-1	S
IC206	C-2	
IC207	C-2	
IC208	C-2	S
IC209	D-2	S
IC210	C-2	
IC501	D-4	
IC502	C-4	
IC503	D-4	S
IC504	B-4	
IC505	C-5	S
IC506	B-4	
IC507	C-4	S
IC508	C-4	S
IC509	C-4	
IC510	D-3	S
IC512	E-4	
IC513	E-4	
IC701	D-7	
IC702	D-6	
IC703	D-6	
IC704	D-7	
IC705	D-5	
IC706	E-5	S
IC707	E-6	
IC708	D-6	
IC709	D-7	
IC801	C-7	
IC802	C-6	S
IC803	C-7	S
IC804	C-6	
IC805	B-7	S
IC806	B-6	S
IC807	B-5	S
IS406		
J001		
JR240		
L001	E-7	
L002	E-7	
L031	E-7	
L032	F-7	
L061	F-7	
L062	F-7	
L091	F-5	S
L092	A-3	
L093	A-3	
L094	A-3	
L100	E-3	
L101	E-3	
L102	F-3	S
L103	F-3	S
L104	F-3	S
L106	E-3	S
L107	E-3	S
L201	C-1	S
L202	C-2	S
L203	C-3	
L204	D-2	S
L205	C-2	S
L207	C-2	
L401		
L501	C-4	S
L502	C-4	S
L503	D-4	S
L504	C-4	S
L505	C-4	S
L506	B-3	S
L507	C-4	S
L508	B-4	S
L509	C-5	S
L513	C-4	
L801	C-7	S
L802	C-7	S
L803	C-7	S
L804	B-7	S
L805	B-7	S
L806	C-7	S
L807	A-7	S
L808	A-7	S
L809	A-7	S
L810	A-7	S
L811	B-7	S
L812	A-7	S
L813	B-6	S
L814	A-6	S
L815	B-6	S
L816	A-6	S
L817	A-5	S
L818	A-5	S
L819	B-5	S
L820	A-5	S
LF001	E-5	
LF031	F-5	
LF061	F-5	
LF081	F-5	
LF100	F-4	
LF101	F-4	
LF102	F-3	
LF801	A-7	
LF802	A-7	
LF803	A-6	
LF804	A-6	
FL805	A-6	
FL806	A-5	
FL807	A-5	
Q001	E-5	S
Q003	E-6	S
Q004	E-6	S
Q005	E-7	S
Q008	E-7	S
Q031	E-5	S
Q033	E-6	S
Q034	E-6	S
Q035	E-7	S
Q036	E-7	S
Q037	E-7	S
Q038	F-7	S
Q061	F-5	S
Q063	F-6	S
Q064	F-6	S
Q065	F-7	S
Q066	F-7	S
Q067	F-7	S
Q068	F-7	S
Q081	F-6	S
Q082	F-6	S
Q083	F-6	
Q084	F-6	
Q091	A-4	S
Q092	A-3	S
Q093	A-4	S
Q100	F-4	
Q101	F-4	
Q102	F-3	S
Q103	F-3	S
Q105	F-2	S
Q106	F-2	S
Q107	F-2	
Q108	E-2	S
Q109	E-3	S
Q110	E-2	S
Q111	E-2	S
Q201	D-1	S
Q202	C-2	S
Q203	C-2	S
Q204	D-2	S
Q205	D-2	S
Q206	D-2	S
Q207	D-2	S
Q501	B-4	S
Q502	C-4	
Q701	E-7	
Q801	C-7	S
Q802	C-6	S
Q803	C-6	S
Q804	C-6	
Q805	C-6	
Q806	A-7	S
Q807	A-7	S
Q808	A-7	
Q809	A-7	
Q810	A-7	S
Q811	A-7	S
Q812	A-7	
Q813	A-7	
Q814	A-6	S
Q815	B-6	S
Q816	A-6	
Q817	A-6	
Q818	A-6	S
Q819	B-6	S
Q820	A-6	
Q821	A-6	
Q822	A-6	S
Q823	A-5	S
Q824	A-5	
Q825	A-5	
Q826	A-5	S
Q827	A-5	S
Q828	A-5	
Q829	A-5	
Q830	A-4	
Q831	A-4	
X201	C-2	
X501	D-5	

S:SOLDERING SIDE

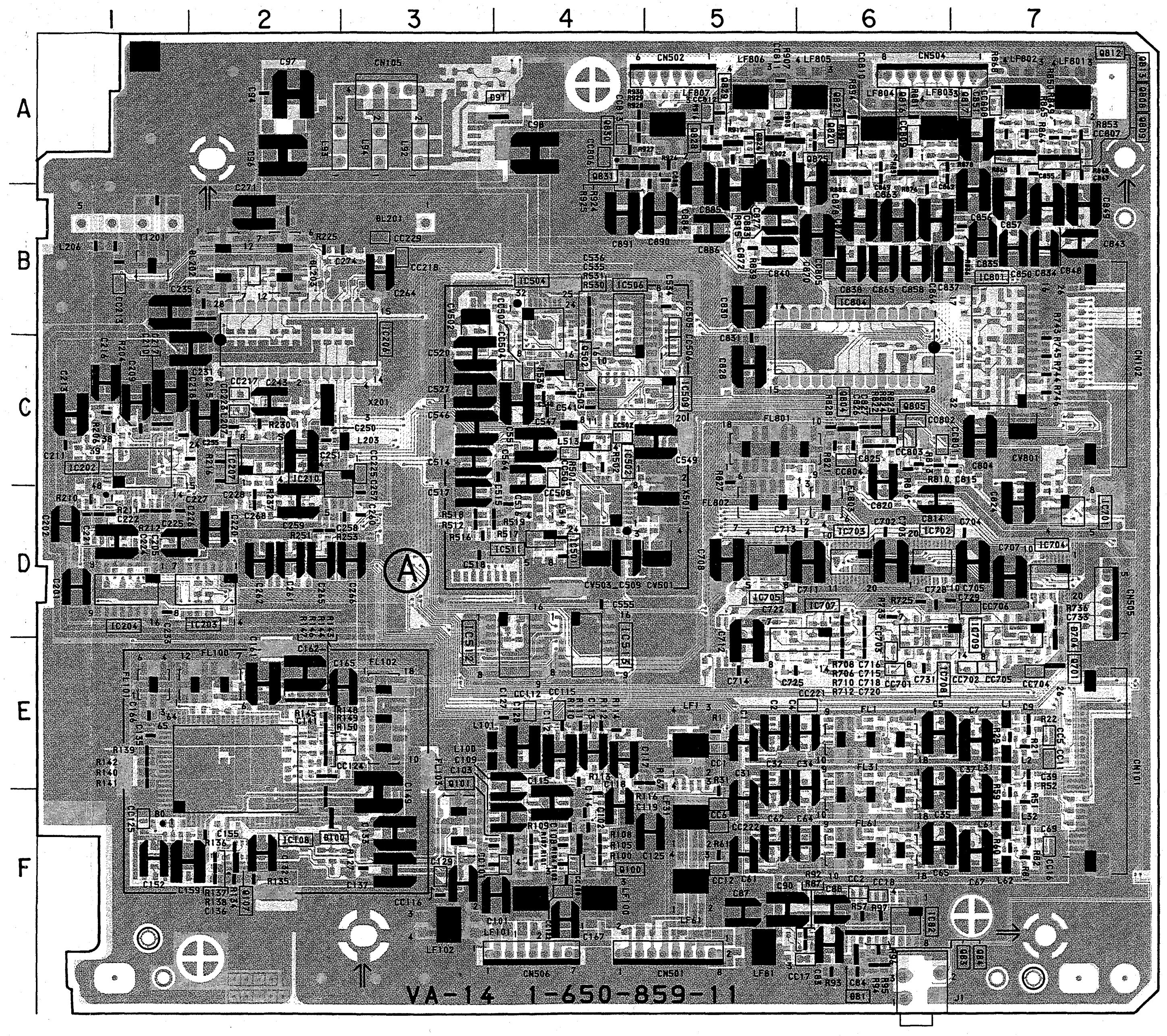


VA-14 -SOLDERING SIDE-



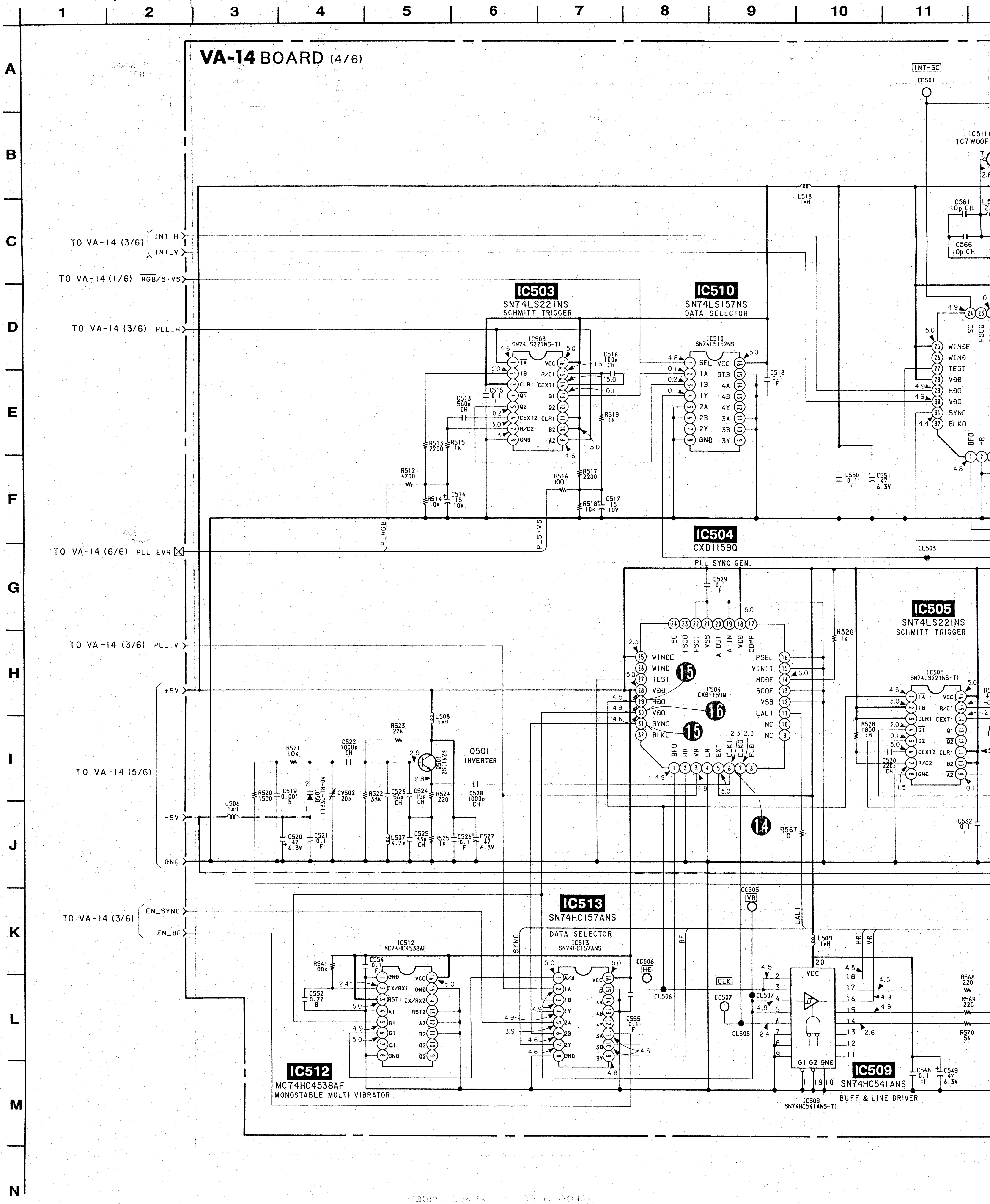


VA-14 -SOLDERING SIDE-

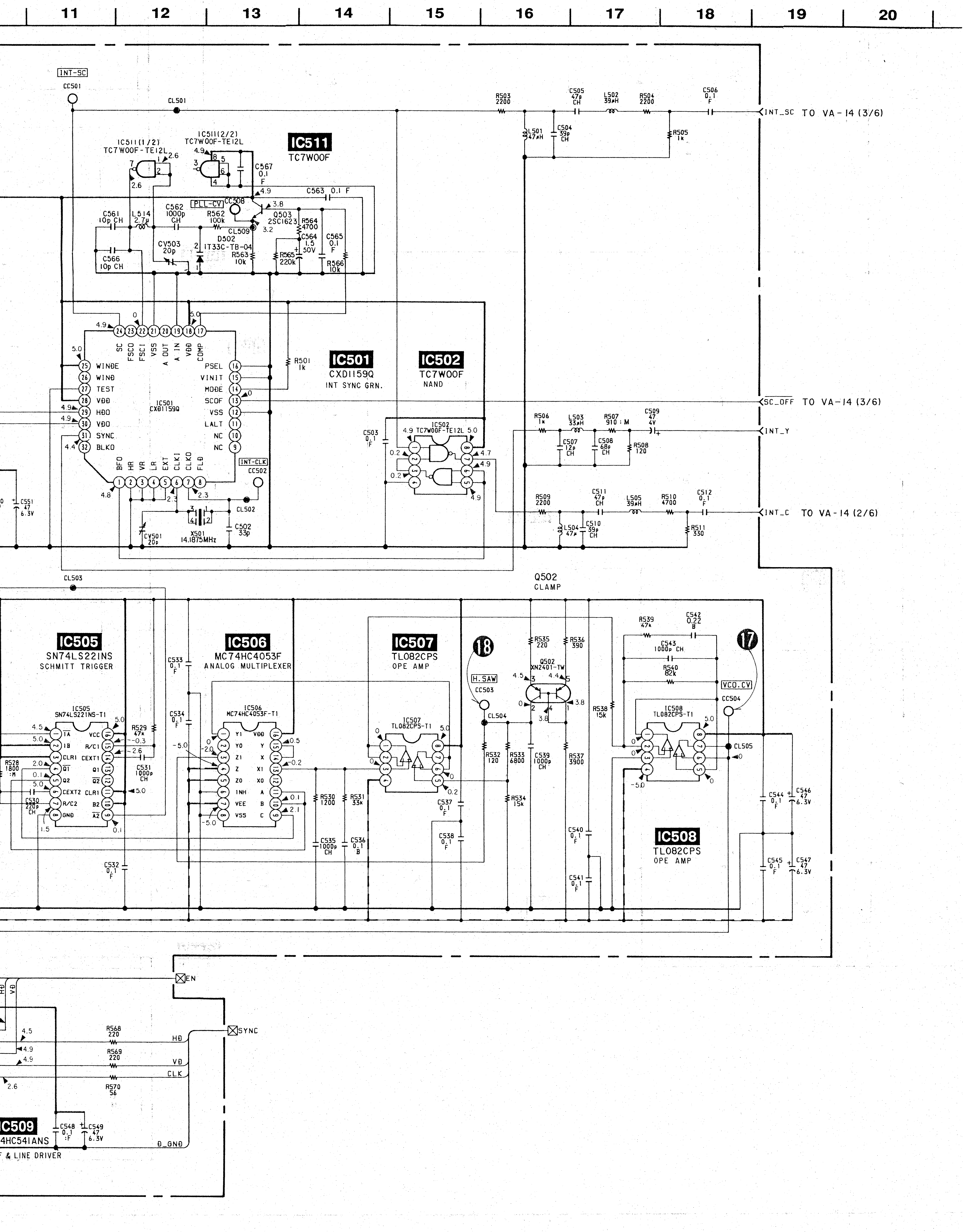


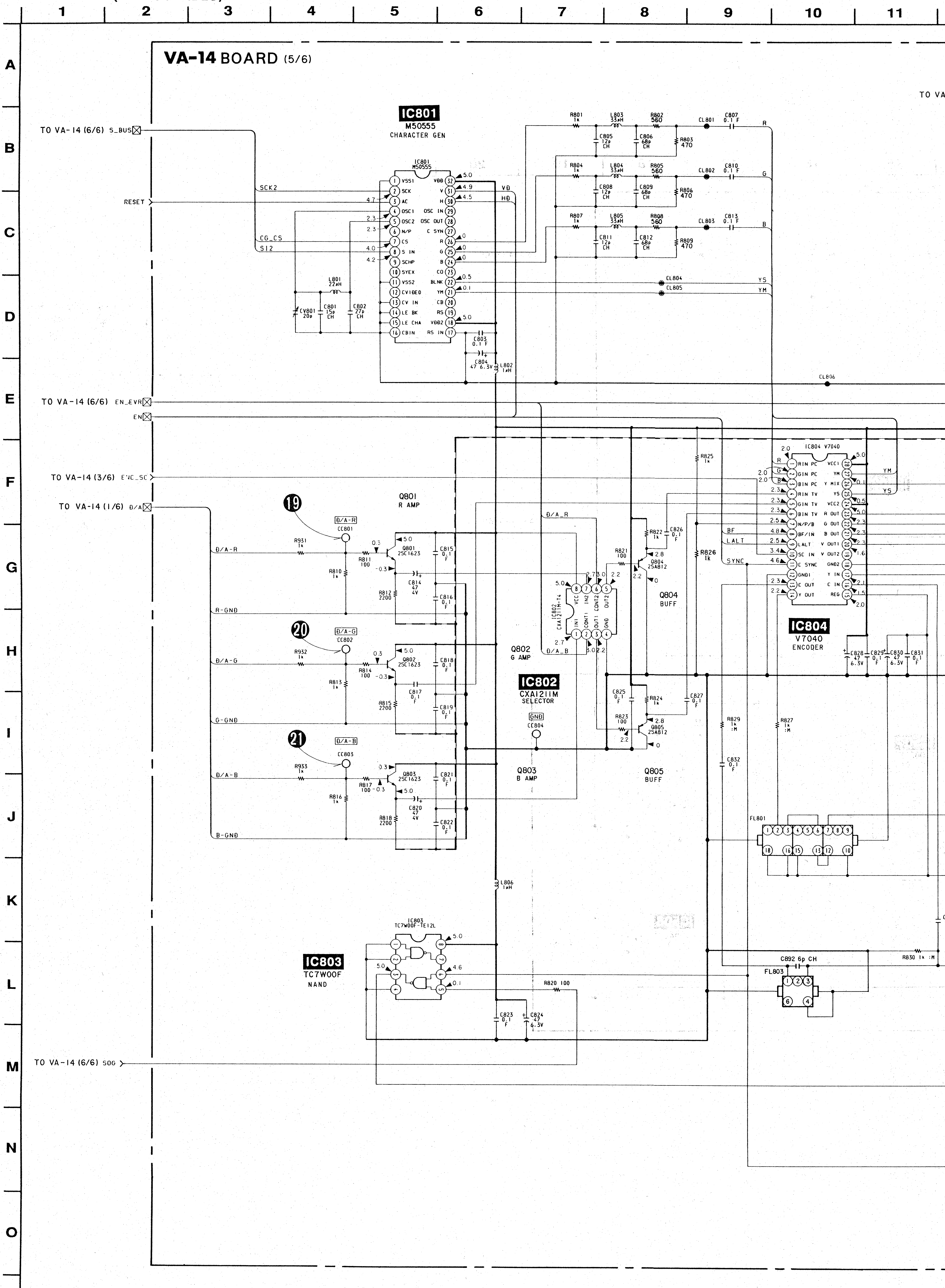
VA-14 -COMPONENT SIDE-

VA-14 — 4/6 — (ANALOG VIDEO)



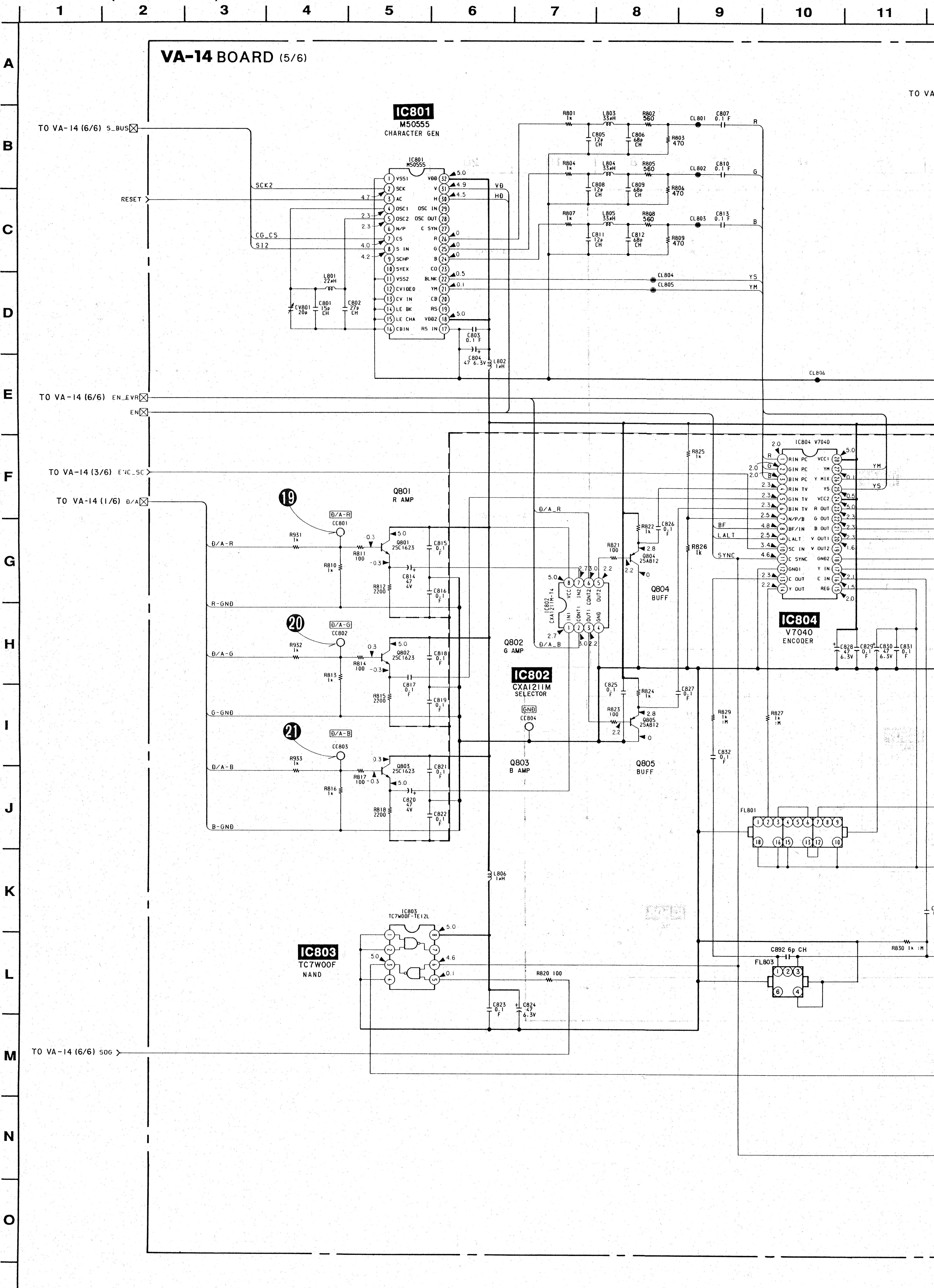
1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
I
J
K
L
M
N
VA-14 BOARD (4/6)
TO VA-14 (3/6) INT_H
INT_V
TO VA-14 (1/6) RGB/S·VS
TO VA-14 (3/6) PLL_H
TO VA-14 (6/6) PLL_EVR
TO VA-14 (3/6) PLL_V
+5V
TO VA-14 (5/6)
-5V
GND
TO VA-14 (3/6) EN_SYNC
EN_BF
IC503
SN74LS221NS
SCHMITT TRIGGER
IC510
SN74LS157NS
DATA SELECTOR
IC504
CXD1159Q
PLL SYNC GEN.
IC505
SN74LS221NS
SCHMITT TRIGGER
IC513
SN74HC157ANS
DATA SELECTOR
IC512
MC74HC4538AF
MONOSTABLE MULTI VIBRATOR
IC509
SN74HC541ANS
BUFF & LINE DRIVER
IC509 SN74HC541ANS-T1
IC511 TC7W00F
Q501 2SC1623 INVERTER
D501 1T33C-18-04
INT-SC
CC501
CC505 VD
CC506 HD
CC507 CLK
CL503
CL506
CL507
CL508
L506 1μH
L507 4.7μ
L508 1μH
L509 1μH
L513 1μH
R512 4700
R513 2200
R514 10k
R515 1k
R516 100
R517 2200
R518 10k
R519 1k
R520 1500
R521 10k
R522 33k
R523 22k
R524 220
R525 1k
R526 1k
R528 1800 :M
R541 100k
R567 0
R568 220
R569 220
R570 56
C513 560p CH
C514 15 10V
C515 0.1 F
C516 100p CH
C517 15 10V
C518 0.1 F
C519 0.001 B
C520 47 6.3V
C521 0.1 F
C522 1000p CH
C523 56p CH
C524 15p CH
C525 33p CH
C526 0.1 F
C527 47 6.3V
C528 1000p CH
C529 0.1 F
C530 220p CH
C532 0.1 F
C548 0.1 F
C549 47 6.3V
C550 0.1 F
C551 47 6.3V
C552 0.22 B
C554 0.1 F
C555 0.1 F
C561 10p CH
C566 10p CH
CV502 20p
P_RGB
P_S·VS
SYNC
BF
LALT
HD
VD
⑭
⑮
⑯

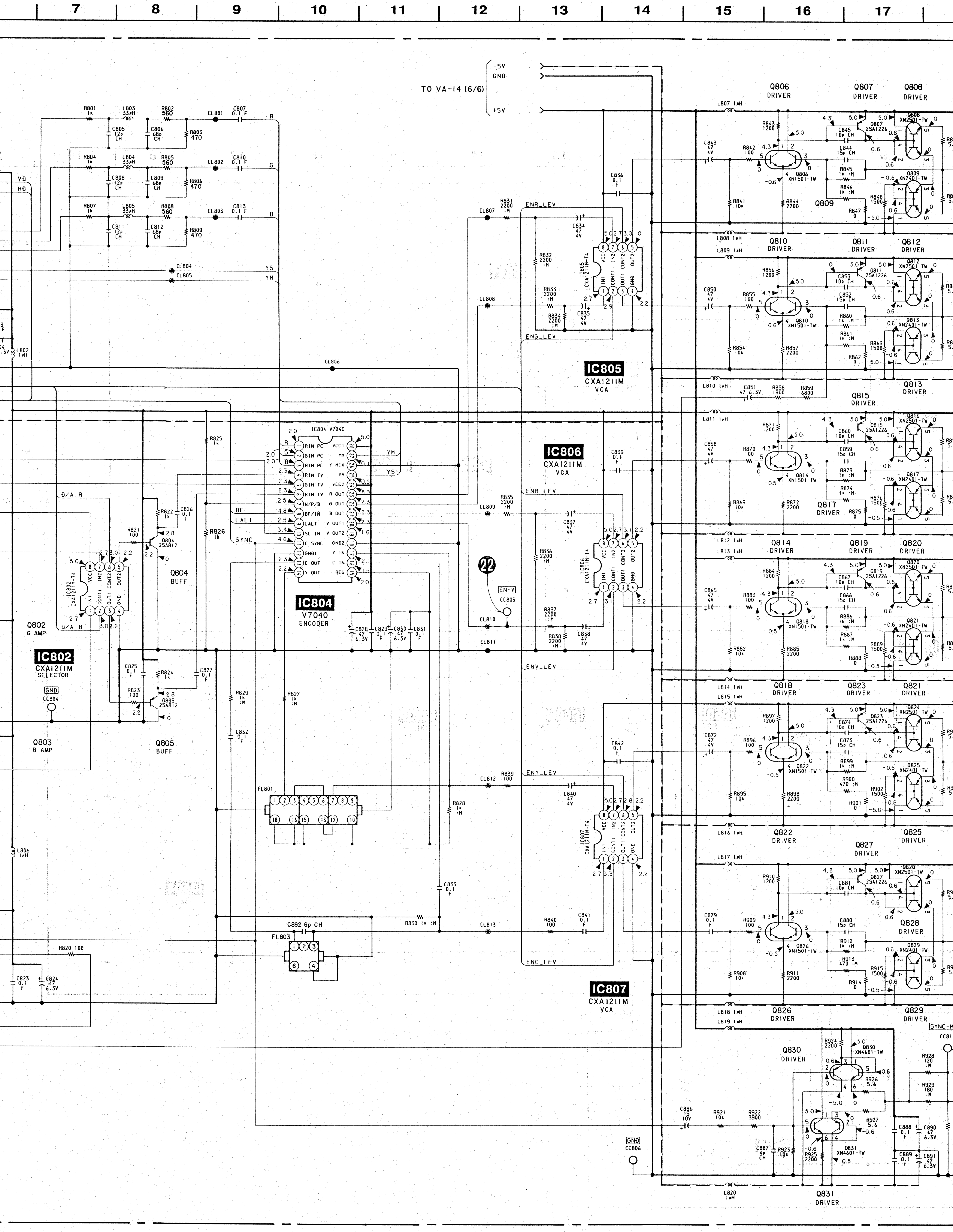

11
12
13
14
15
16
17
18
19
20
INT-SC
CC501
CL501
IC511
TC7W00F
IC511(1/2) TC7W00F-TE12L
IC511(2/2) TC7W00F-TE12L
PLL-CV
CC508
Q503 2SC1623
D502 1T33C-TB-04
CV503 20p
IC501
CXD1159Q
INT SYNC GRN.
IC502
TC7W00F
NAND
IC501 CXD1159Q
IC502 TC7W00F-TE12L
INT-CLK
CC502
X501 14.1875MHz
CV501 20p
CL502
CL503
INT_SC TO VA-14 (3/6)
SC_OFF TO VA-14 (3/6)
INT_Y
INT_C TO VA-14 (2/6)
Q502
CLAMP
Q502 XN2401-TW
IC505
SN74LS221NS
SCHMITT TRIGGER
IC505 SN74LS221NS-T1
IC506
MC74HC4053F
ANALOG MULTIPLEXER
IC506 MC74HC4053F-T1
IC507
TL082CPS
OPE AMP
IC507 TL082CPS-T1
⑱
H.SAW
CC503
CL504
⑰
VCO.CV
CC504
CL505
IC508
TL082CPS
OPE AMP
IC508 TL082CPS-T1
EN
SYNC
HD
VD
CLK
D_GND
IC509
4HC541ANS
F & LINE DRIVER

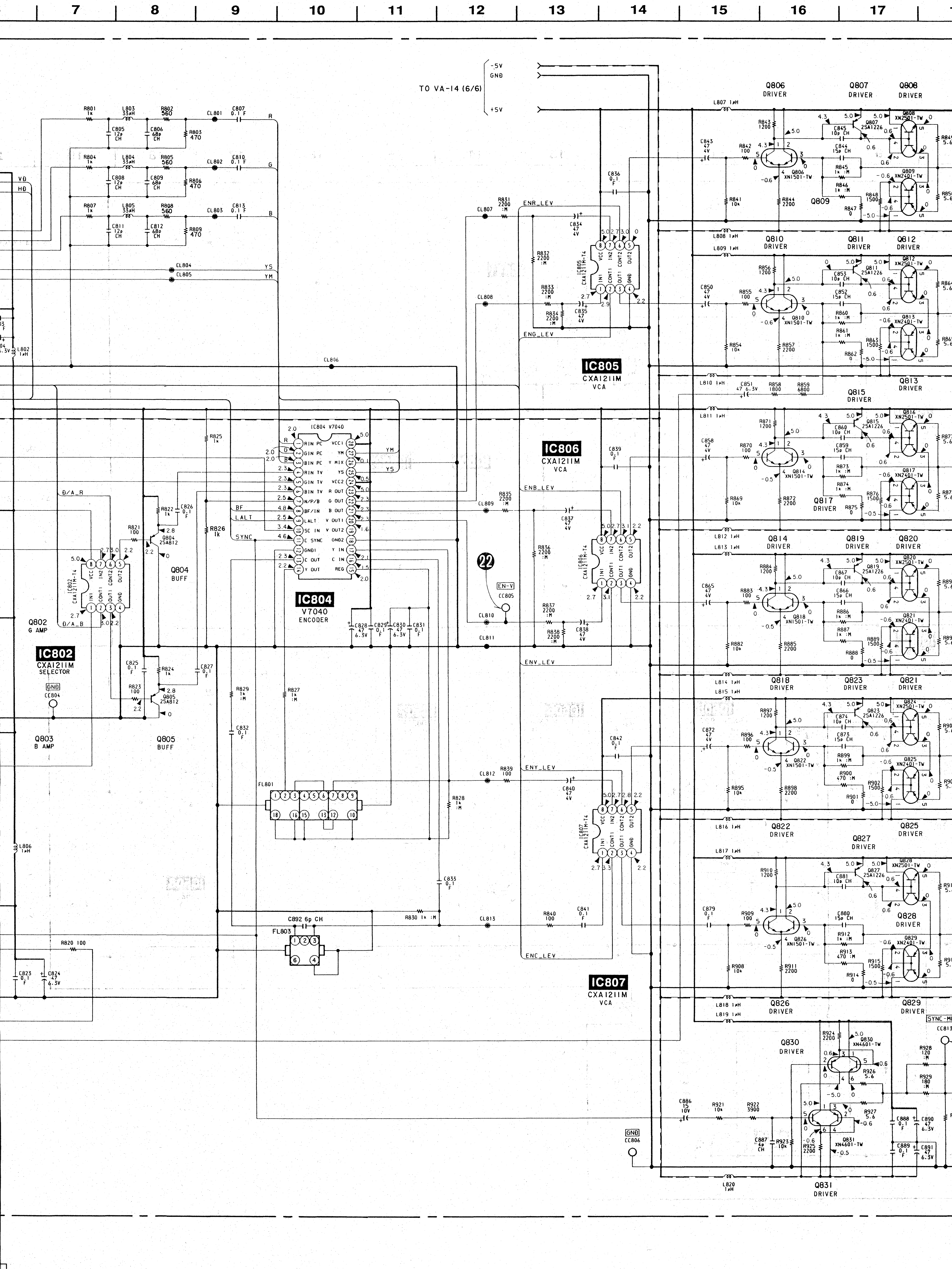

1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
VA-14 BOARD (5/6)
TO VA
TO VA-14 (6/6) S_BUS
RESET
SCK2
CG_CS
S12
IC801
M50555
CHARACTER GEN
VSS1
SCK
AC
OSC1
OSC2
N/P
CS
S IN
SCHP
SYEX
VSS2
CVIDEO
CV IN
LE BK
LE CHA
CBIN
VDD
V
H
OSC IN
OSC OUT
C SYN
R
G
B
CO
BLNK
YM
CB
RS
VDD2
RS IN
VD
HD
L801 22μH
CV801 20p
C801 15p CH
C802 27p CH
C803 0.1 F
C804 47 6.3V
L802 1μH
R801 1k
L803 33μH
R802 560
C805 12p CH
C806 68p CH
R803 470
CL801
C807 0.1 F
R804 1k
L804 33μH
R805 560
C808 12p CH
C809 68p CH
R806 470
CL802
C810 0.1 F
R807 1k
L805 33μH
R808 560
C811 12p CH
C812 68p CH
R809 470
CL803
C813 0.1 F
CL804
CL805
YS
YM
CL806
TO VA-14 (6/6) EN_EVR
EN
TO VA-14 (3/6) ENC_SC
TO VA-14 (1/6) D/A
19
20
21
D/A-R
CC801
D/A-G
CC802
D/A-B
CC803
R931 1k
R932 1k
R933 1k
R810 1k
R811 100
R812 2200
R813 1k
R814 100
R815 2200
R816 1k
R817 100
R818 2200
Q801 R AMP
Q801 2SC1623
Q802 G AMP
Q802 2SC1623
Q803 B AMP
Q803 2SC1623
C814 47 4V
C815 0.1 F
C816 0.1 F
C817 0.1 F
C818 0.1 F
C819 0.1 F
C820 47 4V
C821 0.1 F
C822 0.1 F
R-GND
G-GND
B-GND
D/A_R
D/A_B
IC802 CXA1211M-T4
VCC
IN2
CONT2
OUT2
IN1
CONT1
OUT1
GND
IC802
CXA1211M
SELECTOR
GND
CC804
R821 100
R822 1k
C826 0.1 F
Q804 2SA812
Q804 BUFF
R823 100
R824 1k
C825 0.1 F
C827 0.1 F
Q805 2SA812
Q805 BUFF
R825 1k
R826 1k
BF
LALT
SYNC
IC804 V7040
RIN PC
GIN PC
BIN PC
RIN TV
GIN TV
BIN TV
N/P/B
BF/IN
LALT
SC IN
C SYNC
GND1
C OUT
Y OUT
VCC1
YM
Y MIX
YS
VCC2
R OUT
G OUT
B OUT
V OUT1
V OUT2
GND2
Y IN
C IN
REG
IC804
V7040
ENCODER
C828 47 6.3V
C829 0.1 F
C830 47 6.3V
C831 0.1 F
R829 1k :M
R827 1k :M
C832 0.1 F
FL801
L806 1μH
IC803 TC7W00F-TE12L
IC803
TC7W00F
NAND
R820 100
C823 0.1 F
C824 47 6.3V
C892 6p CH
FL803
R830 1k :M
TO VA-14 (6/6) SOG

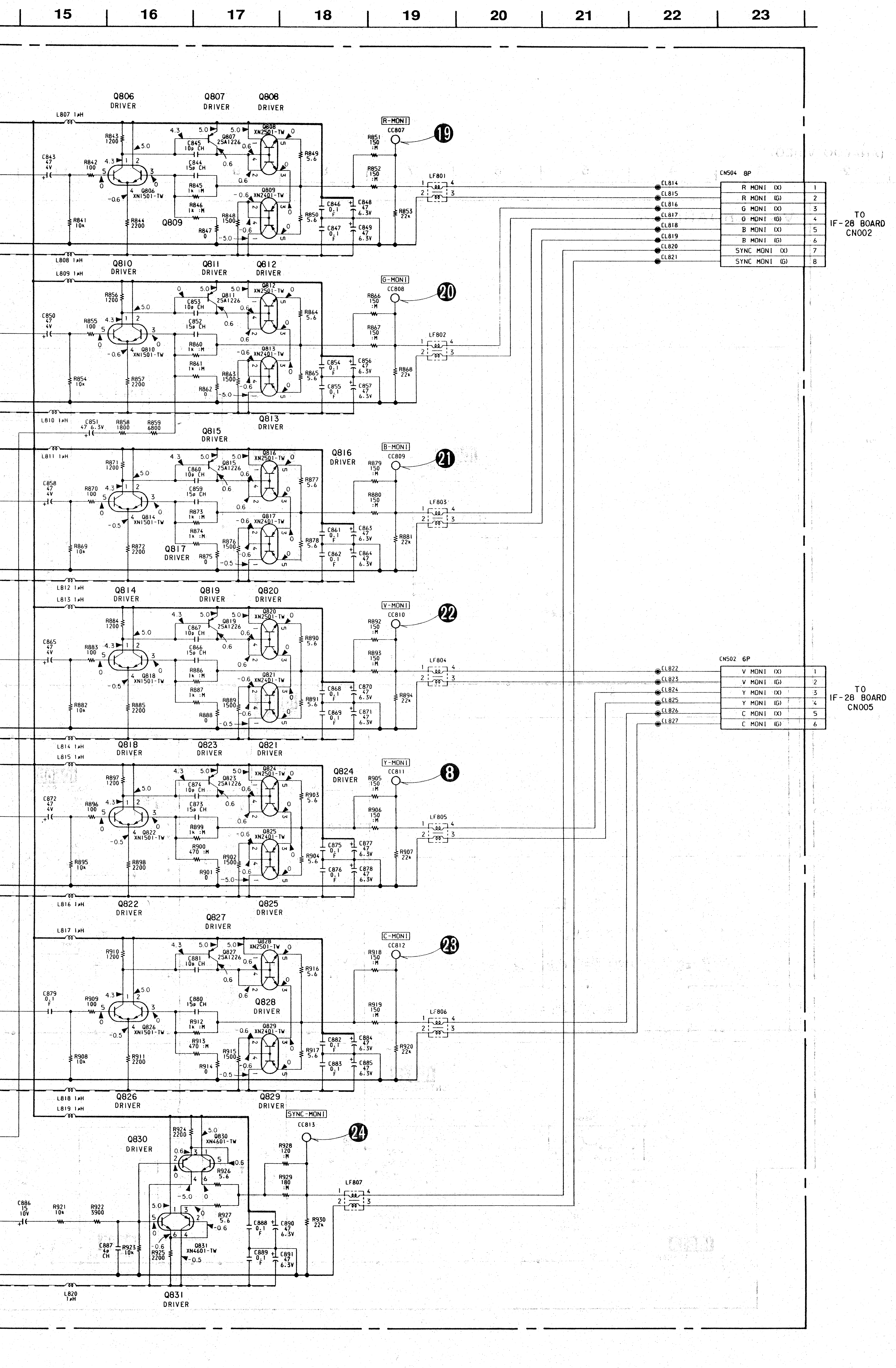
ANALOG VIDEO VA-14

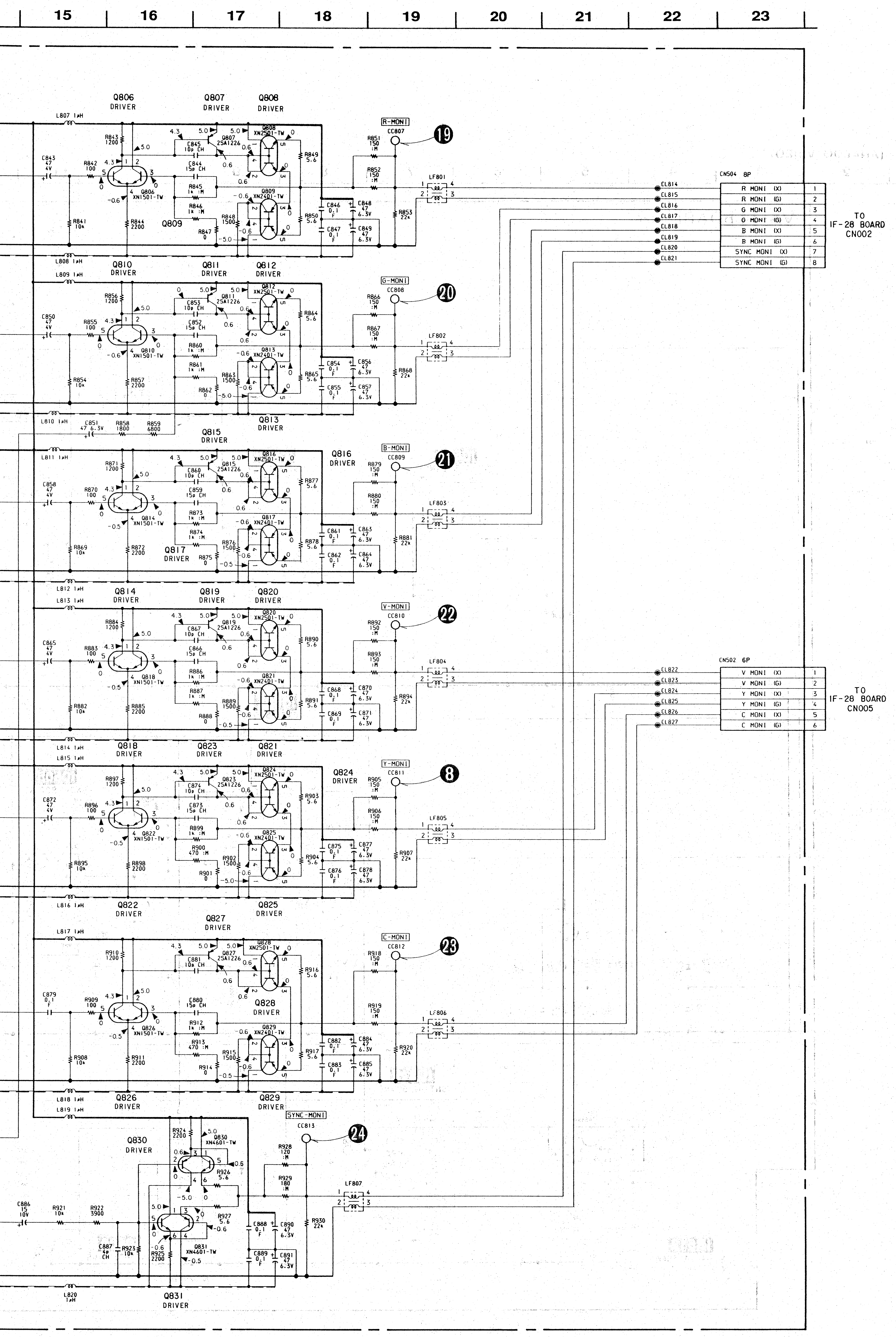
ANALOG VIDEO VA-14


1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
VA-14 BOARD (5/6)
IC801
M50555
CHARACTER GEN
IC802
CXA1211M
SELECTOR
IC803
TC7W00F
NAND
IC804
V7040
ENCODER
Q801
R AMP
Q802
G AMP
Q803
B AMP
Q804
BUFF
Q805
BUFF
TO VA-14 (6/6) S_BUS
RESET
TO VA-14 (6/6) EN_EVR
EN
TO VA-14 (3/6) ENC_SC
TO VA-14 (1/6) D/A
TO VA-14 (6/6) SOG
TO VA
SCK2
CG_CS
SI2
VD
HD
D/A-R
R-GND
D/A-G
G-GND
D/A-B
B-GND
D/A_R
D/A_B
BF
LALT
SYNC
YM
YS
R
G
B
⑲
⑳
㉑
D/A-R
CC801
D/A-G
CC802
D/A-B
CC803
GND
CC804
FL801
FL803
C892 6p CH
R830 1k :M
R820 100
L806 1μH
L802 1μH
CL801
CL802
CL803
CL804
CL805
CL806

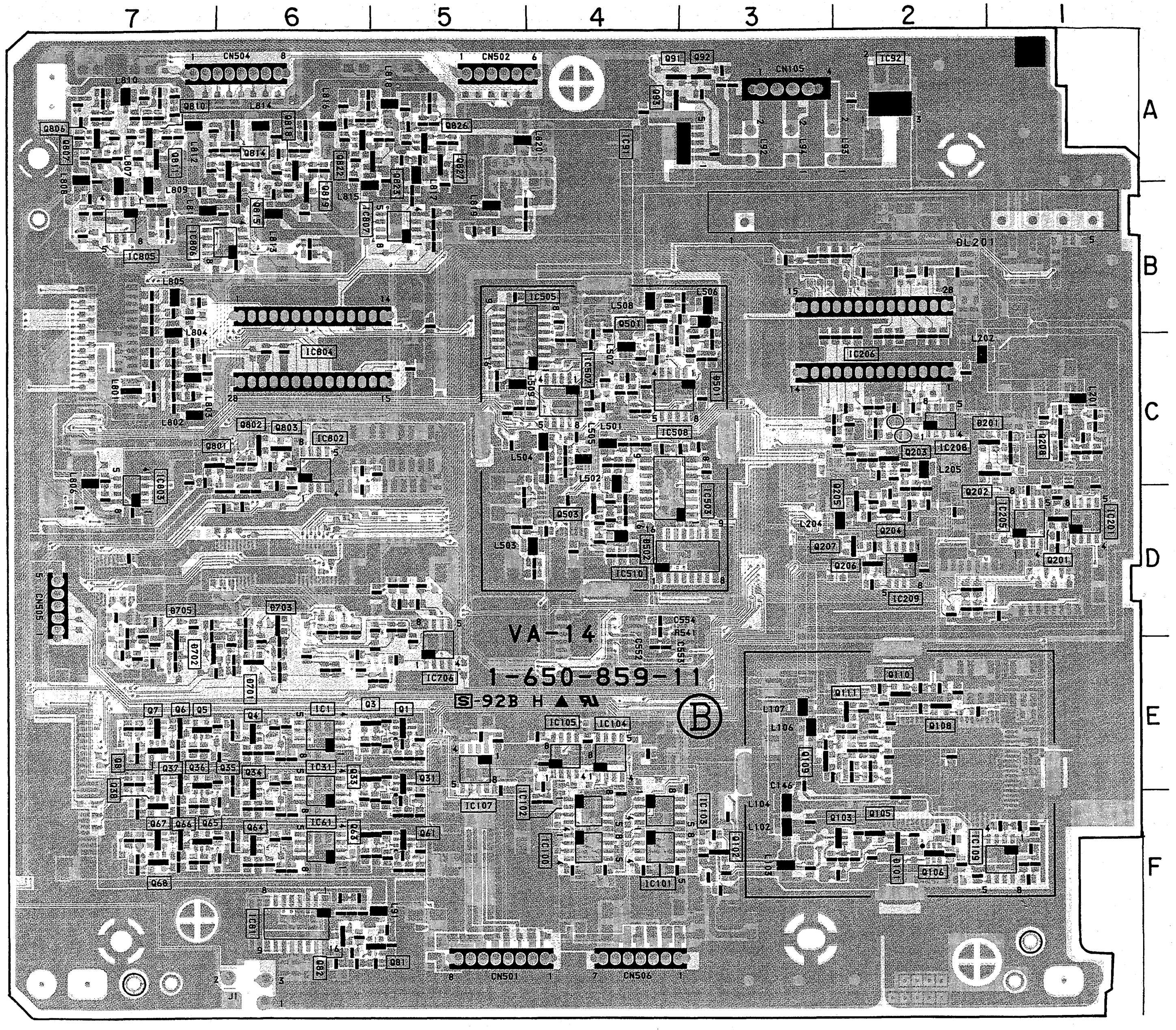

7
8
9
10
11
12
13
14
15
16
17
TO VA-14 (6/6)
-5V
GND
+5V
IC802
CXA1211M
SELECTOR
IC804
V7040
ENCODER
IC805
CXA1211M
VCA
IC806
CXA1211M
VCA
IC807
CXA1211M
VCA
Q802
G AMP
Q803
B AMP
Q804
BUFF
Q805
BUFF
Q806
DRIVER
Q807
DRIVER
Q808
DRIVER
Q809
Q810
DRIVER
Q811
DRIVER
Q812
DRIVER
Q813
DRIVER
Q814
DRIVER
Q815
DRIVER
Q817
DRIVER
Q818
DRIVER
Q819
DRIVER
Q820
DRIVER
Q821
DRIVER
Q822
DRIVER
Q823
DRIVER
Q825
DRIVER
Q826
DRIVER
Q827
DRIVER
Q828
DRIVER
Q829
DRIVER
Q830
DRIVER
Q831
DRIVER
VD
HD
YS
YM
BF
LALT
SYNC
D/A_R
D/A_B
ENR_LEV
ENG_LEV
ENB_LEV
ENV_LEV
ENY_LEV
ENC_LEV
EN-V
CC805
GND
CC804
GND
CC806
SYNC-M
FL801
FL803
22


7
8
9
10
11
12
13
14
15
16
17
TO VA-14 (6/6)
-5V
GND
+5V
IC802
CXA1211M
SELECTOR
IC804
V7040
ENCODER
IC805
CXA1211M
VCA
IC806
CXA1211M
VCA
IC807
CXA1211M
VCA
Q802
G AMP
Q803
B AMP
Q804
BUFF
Q805
BUFF
Q806
DRIVER
Q807
DRIVER
Q808
DRIVER
Q809
Q810
DRIVER
Q811
DRIVER
Q812
DRIVER
Q813
DRIVER
Q814
DRIVER
Q815
DRIVER
Q817
DRIVER
Q818
DRIVER
Q819
DRIVER
Q820
DRIVER
Q821
DRIVER
Q822
DRIVER
Q823
DRIVER
Q825
DRIVER
Q826
DRIVER
Q827
DRIVER
Q828
DRIVER
Q829
DRIVER
Q830
DRIVER
Q831
DRIVER
FL801
FL803
CL801
CL802
CL803
CL804
CL805
CL806
CL807
CL808
CL809
CL810
CL811
CL812
CL813
CC804
CC805
CC806
GND
EN-V
22
ENR_LEV
ENG_LEV
ENB_LEV
ENV_LEV
ENY_LEV
ENC_LEV
VD
HD
YS
YM
D/A_R
D/A_B
BF
LALT
SYNC
SYNC-M
RIN PC
GIN PC
BIN PC
RIN TV
GIN TV
BIN TV
N/P/B
BF/IN
LALT
SC IN
C SYNC
GND1
C OUT
Y OUT
VCC1
YM
Y MIX
YS
VCC2
R OUT
G OUT
B OUT
V OUT1
V OUT2
GND2
Y IN
C IN
REG
R801 1k
L803 33μH
R802 560
C807 0.1 F
C805 12p CH
C806 68p CH
R803 470
R804 1k
L804 33μH
R805 560
C810 0.1 F
C808 12p CH
C809 68p CH
R806 470
R807 1k
L805 33μH
R808 560
C813 0.1 F
C811 12p CH
C812 68p CH
R809 470
L802 1μH
L806 1μH
R820 100
C823 0.1 F
C824 47 6.3V
R821 100
R822 1k
C826 0.1 F
R823 100
R824 1k
C825 0.1 F
C827 0.1 F
R825 1k
R826 1k
R827 1k :M
R828 1k :M
R829 1k :M
R830 1k :M
C828 47 6.3V
C829 0.1 F
C830 47 6.3V
C831 0.1 F
C832 0.1 F
C833 0.1 F
C892 6p CH
R831 2200 :M
R832 2200 :M
R833 2200 :M
R834 2200 :M
C834 47 4V
C835 47 4V
C836 0.1 F
R835 2200 :M
R836 2200 :M
R837 2200 :M
R838 2200 :M
C837 47 4V
C838 47 4V
C839 0.1 F
R839 100
C840 47 4V
R840 100
C841 0.1 F
C842 0.1 F
L807 1μH
L808 1μH
L809 1μH
L810 1μH
L811 1μH
L812 1μH
L813 1μH
L814 1μH
L815 1μH
L816 1μH
L817 1μH
L818 1μH
L819 1μH
L820 1μH
C843 47 4V
R841 10k
R842 100
R843 1200
R844 2200
C844 15p CH
C845 10p CH
R845 1k :M
R846 1k :M
R847 0
R848 1500
C850 47 4V
C851 47 6.3V
R854 10k
R855 100
R856 1200
R857 2200
R858 1800
R859 6800
C852 15p CH
C853 10p CH
R860 1k :M
R861 1k :M
R862 0
R863 1500
C858 47 4V
R869 10k
R870 100
R871 1200
R872 2200
C859 15p CH
C860 10p CH
R873 1k :M
R874 1k :M
R875 0
R876 1500
C865 47 4V
R882 10k
R883 100
R884 1200
R885 2200
C866 15p CH
C867 10p CH
R886 1k :M
R887 1k :M
R888 0
R889 1500
C872 47 4V
R895 10k
R896 100
R897 1200
R898 2200
C873 15p CH
C874 10p CH
R899 1k :M
R900 470 :M
R901 0
R902 1500
C879 0.1 F
R908 10k
R909 100
R910 1200
R911 2200
C880 15p CH
C881 10p CH
R912 1k :M
R913 470 :M
R914 0
R915 1500
C886 15 10V
C887 4p CH
R921 10k
R922 3900
R923 10k
R924 2200
R925 2200
R926 5.6
R927 5.6
R928 120 :M
R929 180 :M
C888 0.1 F
C889 0.1 F
C890 47 6.3V
C891 47 6.3V
2SA812
2SA1226
XN1501-TW
XN2501-TW
XN2401-TW
XN4601-TW
CXA1211M-T4
V7040

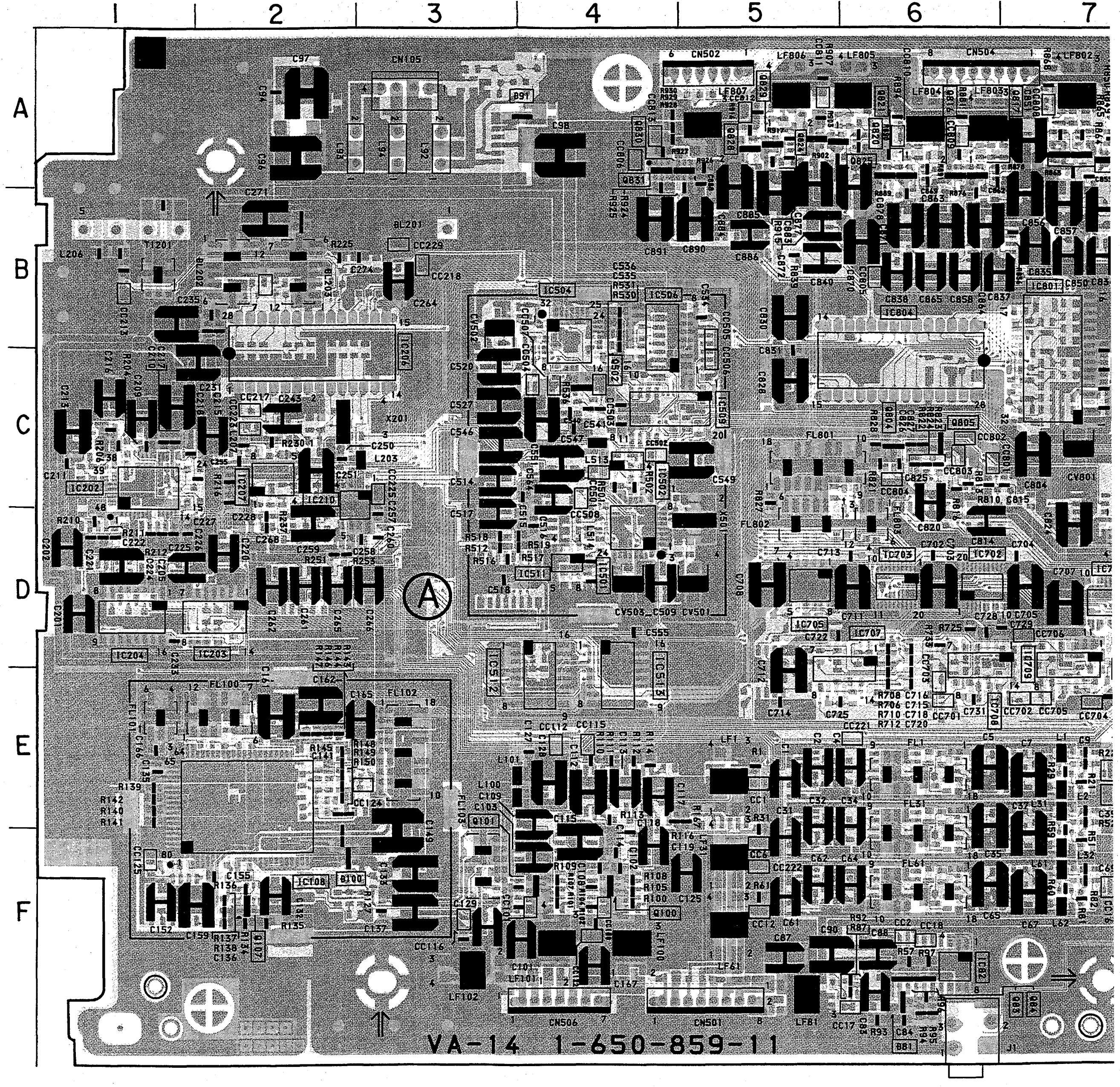

15
16
17
18
19
20
21
22
23
Q806 DRIVER
Q807 DRIVER
Q808 DRIVER
Q809
Q810 DRIVER
Q811 DRIVER
Q812 DRIVER
Q813 DRIVER
Q814 DRIVER
Q815 DRIVER
Q816 DRIVER
Q817 DRIVER
Q818 DRIVER
Q819 DRIVER
Q820 DRIVER
Q821 DRIVER
Q822 DRIVER
Q823 DRIVER
Q824 DRIVER
Q825 DRIVER
Q826 DRIVER
Q827 DRIVER
Q828 DRIVER
Q829 DRIVER
Q830 DRIVER
Q831 DRIVER
XN1501-TW
XN2501-TW
XN2401-TW
XN4601-TW
2SA1226
R-MONI
CC807
19
G-MONI
CC808
20
B-MONI
CC809
21
V-MONI
CC810
22
Y-MONI
CC811
8
C-MONI
CC812
23
SYNC-MONI
CC813
24
LF801
LF802
LF803
LF804
LF805
LF806
LF807
CN504 8P
CL814 R MONI (X) 1
CL815 R MONI (G) 2
CL816 G MONI (X) 3
CL817 G MONI (G) 4
CL818 B MONI (X) 5
CL819 B MONI (G) 6
CL820 SYNC MONI (X) 7
CL821 SYNC MONI (G) 8
TO IF-28 BOARD CN002
CN502 6P
CL822 V MONI (X) 1
CL823 V MONI (G) 2
CL824 Y MONI (X) 3
CL825 Y MONI (G) 4
CL826 C MONI (X) 5
CL827 C MONI (G) 6
TO IF-28 BOARD CN005

15
16
17
18
19
20
21
22
23
Q806 DRIVER
Q807 DRIVER
Q808 DRIVER
Q809
R-MONI
CC807
19
LF801
CN504 8P
CL814
CL815
CL816
CL817
CL818
CL819
CL820
CL821
R MONI (X) 1
R MONI (G) 2
G MONI (X) 3
G MONI (G) 4
B MONI (X) 5
B MONI (G) 6
SYNC MONI (X) 7
SYNC MONI (G) 8
TO IF-28 BOARD CN002
Q810 DRIVER
Q811 DRIVER
Q812 DRIVER
Q813 DRIVER
G-MONI
CC808
20
LF802
Q815 DRIVER
Q816 DRIVER
Q817 DRIVER
B-MONI
CC809
21
LF803
Q814 DRIVER
Q819 DRIVER
Q820 DRIVER
V-MONI
CC810
22
LF804
CN502 6P
CL822
CL823
CL824
CL825
CL826
CL827
V MONI (X) 1
V MONI (G) 2
Y MONI (X) 3
Y MONI (G) 4
C MONI (X) 5
C MONI (G) 6
TO IF-28 BOARD CN005
Q818 DRIVER
Q823 DRIVER
Q821 DRIVER
Q824 DRIVER
Y-MONI
CC811
8
LF805
Q822 DRIVER
Q825 DRIVER
Q827 DRIVER
Q828 DRIVER
C-MONI
CC812
23
LF806
Q826 DRIVER
Q829 DRIVER
Q830 DRIVER
Q831 DRIVER
SYNC-MONI
CC813
24
LF807
XN1501-TW
XN2501-TW
XN2401-TW
2SA1226
XN4601-TW

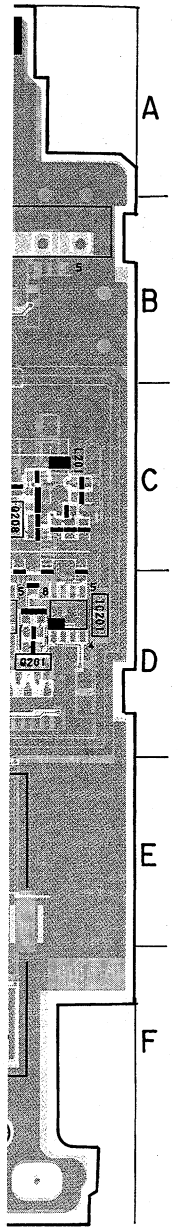
VA-14 (ANALOG VIDEO)


7
6
5
4
3
2
1
A
B
C
D
E
F
VA-14
1-650-859-11
S-92B H
B

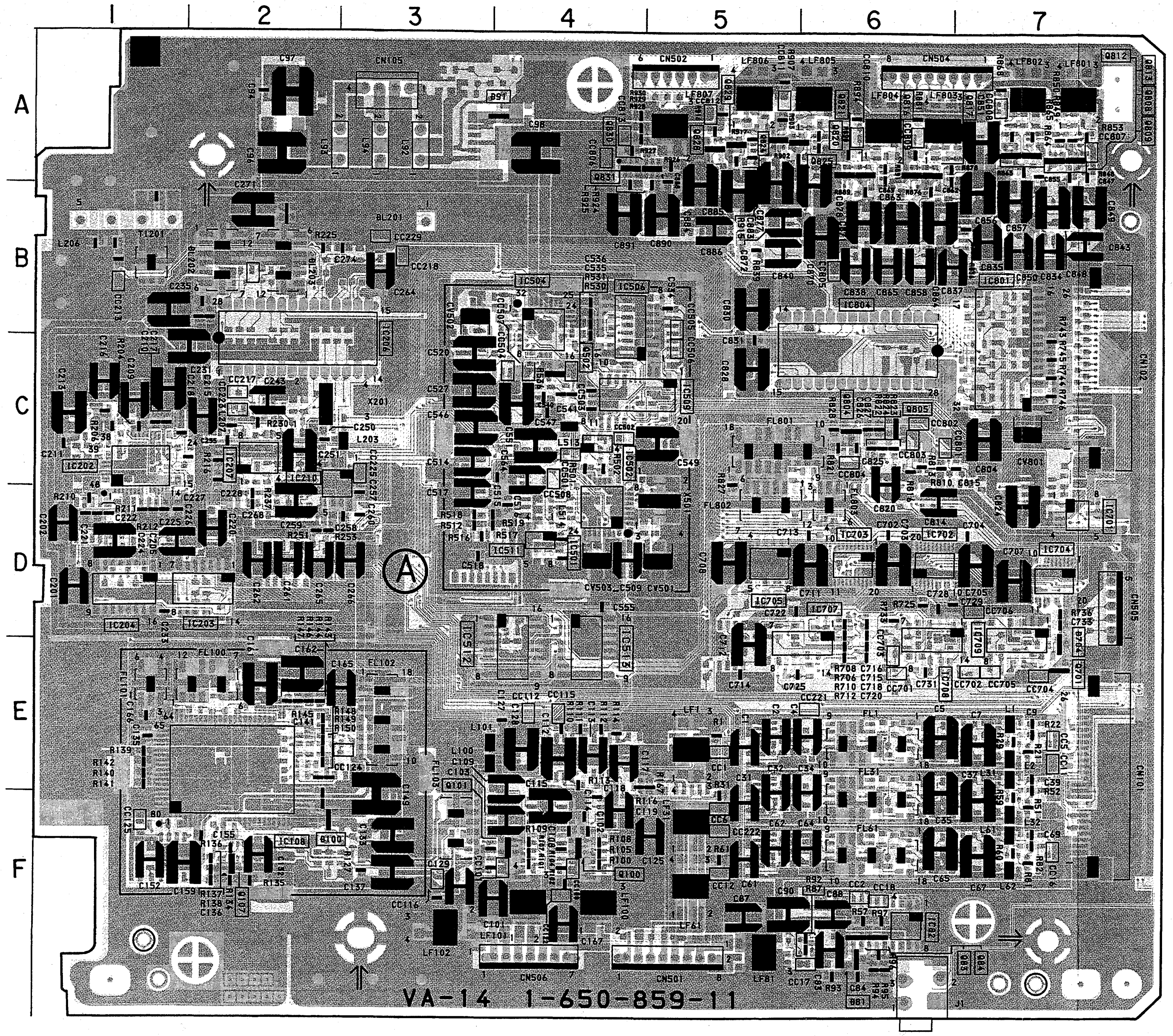
VA-14 -SOLDERING SIDE-


1
2
3
4
5
6
7
A
B
C
D
E
F
A
VA-14 1-650-859-11

VA-14 -COMPON



RING SIDE-



VA-14 -COMPONENT SIDE-

VA-14 BOARD

CN101	E-7	
CN102	C-7	
CN105	A-3	
CN501	F-5	
CN502	A-5	
CN504	A-6	
CN505	D-7	
CN506	F-4	
CV501	D-5	
CV502	B-3	
CV801	C-7	
D081	F-6	
D091	A-4	
D100	F-2	
D101	F-2	S
D201	C-2	S
D501	B-3	S
D701	E-6	S
D702	E-7	S
D703	D-6	S
D704	E-7	
D705	D-7	S
DL202	B-2	
DL203	B-2	
FL001	E-6	
FL031	F-6	
FL061	F-6	
FL100	E-2	
FL102	E-3	
FL103	F-3	
FL801	C-5	
FL802	D-5	
IC001	E-6	S
IC031	E-6	S
IC061	F-6	S
IC081	F-6	S
IC082	F-6	
IC091	A-3	S
IC092	A-2	S
IC100	F-4	S
IC101	F-4	S
IC102	F-4	S
IC103	F-4	S
IC104	E-4	S
IC105	E-5	S
IC107	E-5	S
IC108	E-2	
IC109	F-1	S
IC201	D-1	S
IC202	C-1	
IC203	D-2	
IC204	D-1	
IC205	D-1	S
IC206	C-2	
IC207	C-2	
IC208	C-2	S
IC209	D-2	S
IC210	C-2	
IC501	D-4	
IC502	C-4	
IC503	D-4	S
IC504	B-4	
IC505	C-5	S
IC506	B-4	
IC507	C-4	S
IC508	C-4	S
IC509	C-4	
IC510	D-3	S
IC512	E-4	
IC513	E-4	
IC701	D-7	
IC702	D-6	
IC703	D-6	
IC704	D-7	
IC705	D-5	
IC706	E-5	S
IC707	E-6	
IC708	D-6	
IC709	D-7	
IC801	C-7	
IC802	C-6	S
IC803	C-7	S
IC804	C-6	
IC805	B-7	S
IC806	B-6	S
IC807	B-5	S
IS406		
J001		
JR240		
L001	E-7	
L002	E-7	
L031	E-7	
L032	F-7	
L061	F-7	
L062	F-7	
L091	F-5	S
L092	A-3	
L093	A-3	
L094	A-3	
L100	E-3	
L101	E-3	
L102	F-3	S
L103	F-3	S
L104	F-3	S
L106	E-3	S
L107	E-3	S
L201	C-1	S
L202	C-2	S
L203	C-3	
L204	D-2	S
L205	C-2	S
L207	C-2	
L401		
L501	C-4	S
L502	C-4	S
L503	D-4	S
L504	C-4	S
L505	C-4	S
L506	B-3	S
L507	C-4	S
L508	B-4	S
L509	C-5	S
L513	C-4	
L801	C-7	S
L802	C-7	S
L803	C-7	S
L804	B-7	S
L805	B-7	S
L806	C-7	S
L807	A-7	S
L808	A-7	S
L809	A-7	S
L810	A-7	S
L811	B-7	S
L812	A-7	S
L813	B-6	S
L814	A-6	S
L815	B-6	S
L816	A-6	S
L817	A-5	S
L818	A-5	S
L819	B-5	S
L820	A-5	S
LF001	E-5	
LF031	F-5	
LF061	F-5	
LF081	F-5	
LF100	F-4	
LF101	F-4	
LF102	F-3	
LF801	A-7	
LF802	A-7	
LF803	A-6	
LF804	A-6	
FL805	A-6	
FL806	A-5	
FL807	A-5	
Q001	E-5	S
Q003	E-6	S
Q004	E-6	S
Q005	E-7	S
Q008	E-7	S
Q031	E-5	S
Q033	E-6	S
Q034	E-6	S
Q035	E-7	S
Q036	E-7	S
Q037	E-7	S
Q038	F-7	S
Q061	F-5	S
Q063	F-6	S
Q064	F-6	S
Q065	F-7	S
Q066	F-7	S
Q067	F-7	S
Q068	F-7	S
Q081	F-6	S
Q082	F-6	S
Q083	F-6	
Q084	F-6	
Q091	A-4	S
Q092	A-3	S
Q093	A-4	S
Q100	F-4	
Q101	F-4	
Q102	F-3	S
Q103	F-3	S
Q105	F-2	S
Q106	F-2	S
Q107	F-2	
Q108	E-2	S
Q109	E-3	S
Q110	E-2	S
Q111	E-2	S
Q201	D-1	S
Q202	C-2	S
Q203	C-2	S
Q204	D-2	S
Q205	D-2	S
Q206	D-2	S
Q207	D-2	S
Q501	B-4	S
Q502	C-4	
Q701	E-7	
Q801	C-7	S
Q802	C-6	S
Q803	C-6	S
Q804	C-6	
Q805	C-6	
Q806	A-7	S
Q807	A-7	S
Q808	A-7	
Q809	A-7	
Q810	A-7	S
Q811	A-7	S
Q812	A-7	
Q813	A-7	
Q814	A-6	S
Q815	B-6	S
Q816	A-6	
Q817	A-6	
Q818	A-6	S
Q819	B-6	S
Q820	A-6	
Q821	A-6	
Q822	A-6	S
Q823	A-5	S
Q824	A-5	
Q825	A-5	
Q826	A-5	S
Q827	A-5	S
Q828	A-5	
Q829	A-5	
Q830	A-4	
Q831	A-4	
X201	C-2	
X501	D-5	

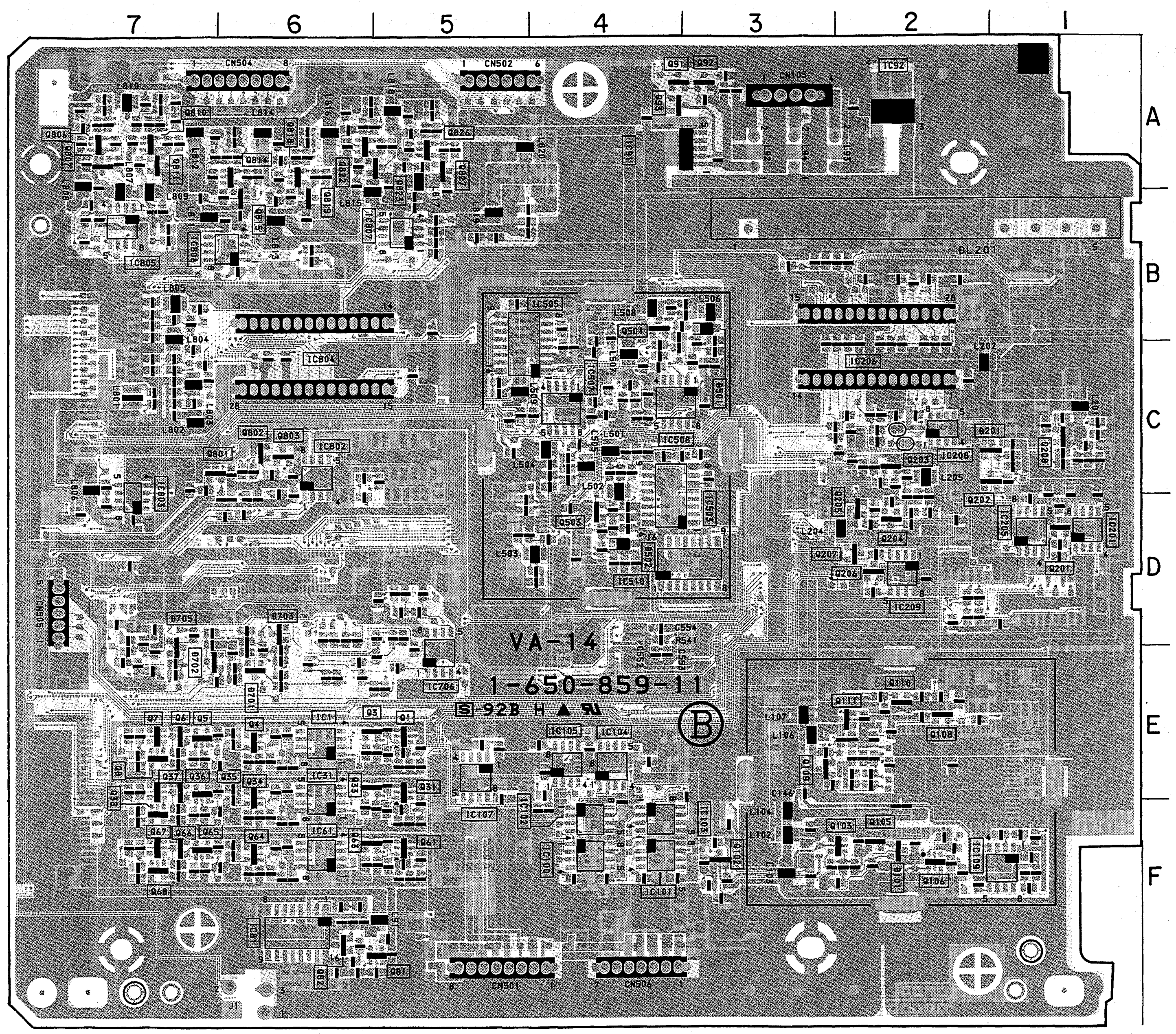
S:SOLDERING SIDE

VA-14 (ANALOG VIDEO)

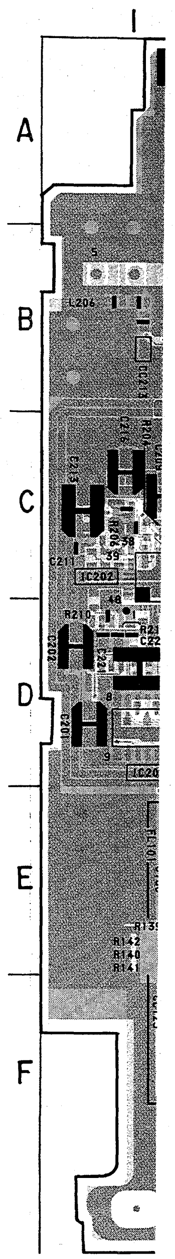
VA-14 BOARD

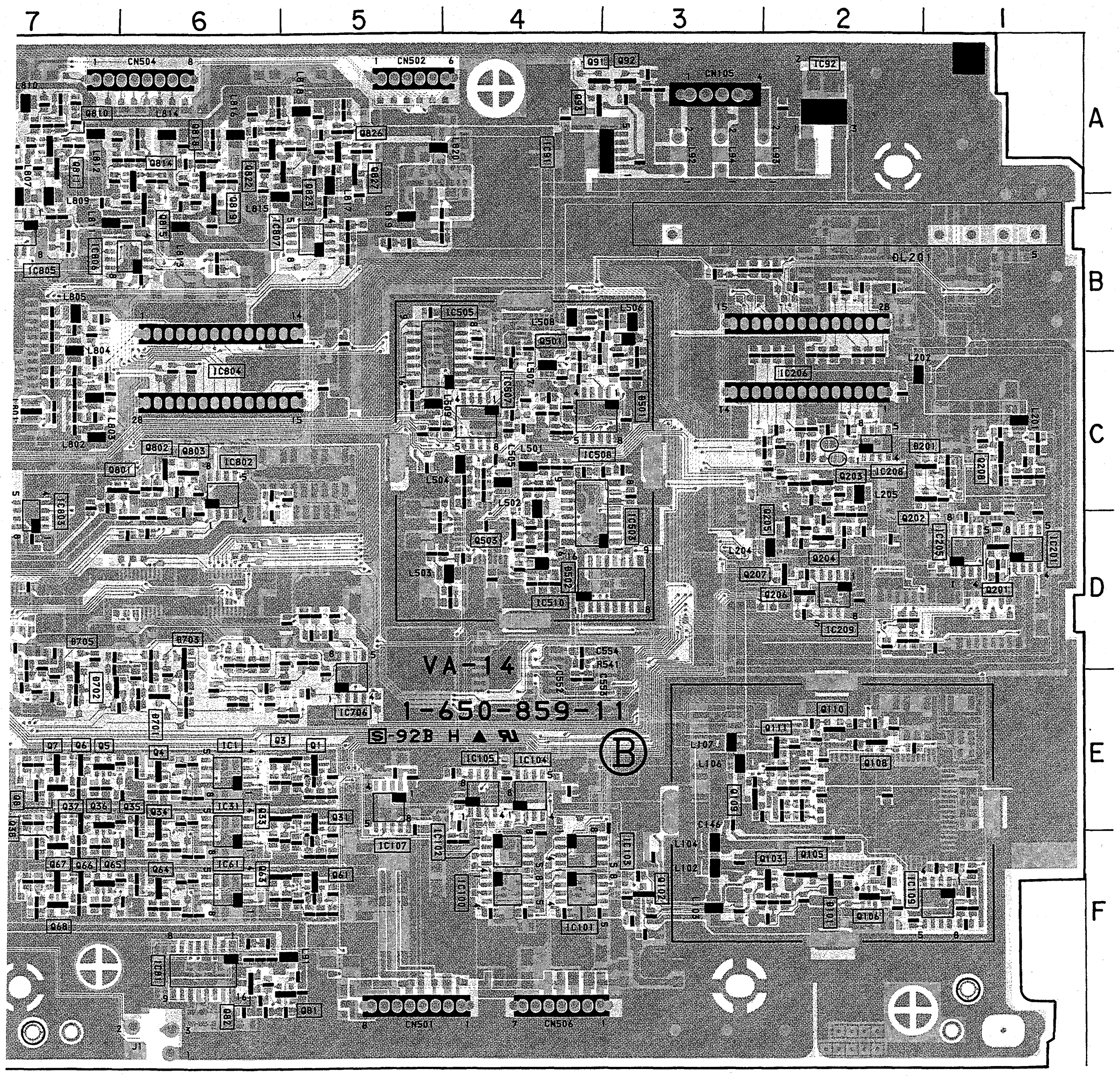
CN101	E-7	
CN102	C-7	
CN105	A-3	
CN501	F-5	
CN502	A-5	
CN504	A-6	
CN505	D-7	
CN506	F-4	
CV501	D-5	
CV502	B-3	
CV801	C-7	
D081	F-6	
D091	A-4	
D100	F-2	
D101	F-2	S
D201	C-2	S
D501	B-3	S
D701	E-6	S
D702	E-7	S
D703	D-6	S
D704	E-7	
D705	D-7	S
DL202	B-2	
DL203	B-2	
FL001	E-6	
FL031	F-6	
FL061	F-6	
FL100	E-2	
FL102	E-3	
FL103	F-3	
FL801	C-5	
FL802	D-5	
IC001	E-6	S
IC031	E-6	S
IC061	F-6	S
IC081	F-6	S
IC082	F-6	
IC091	A-3	S
IC092	A-2	S
IC100	F-4	S
IC101	F-4	S
IC102	F-4	S
IC103	F-4	S
IC104	E-4	S
IC105	E-5	S
IC107	E-5	S
IC108	E-2	
IC109	F-1	S
IC201	D-1	S
IC202	C-1	
IC203	D-2	
IC204	D-1	
IC205	D-1	S
IC206	C-2	
IC207	C-2	
IC208	C-2	S
IC209	D-2	S
IC210	C-2	
IC501	D-4	
IC502	C-4	
IC503	D-4	S
IC504	B-4	
IC505	C-5	S
IC506	B-4	
IC507	C-4	S
IC508	C-4	S
IC509	C-4	
IC510	D-3	S
IC512	E-4	
IC513	E-4	
IC701	D-7	
IC702	D-6	
IC703	D-6	
IC704	D-7	
IC705	D-5	
IC706	E-5	S
IC707	E-6	
IC708	D-6	
IC709	D-7	
IC801	C-7	
IC802	C-6	S
IC803	C-7	S
IC804	C-6	
IC805	B-7	S
IC806	B-6	S
IC807	B-5	S
IS406		
J001		
JR240		
L001	E-7	
L002	E-7	
L031	E-7	
L032	F-7	
L061	F-7	
L062	F-7	
L091	F-5	S
L092	A-3	
L093	A-3	
L094	A-3	
L100	E-3	
L101	E-3	
L102	F-3	S
L103	F-3	S
L104	F-3	S
L106	E-3	S
L107	E-3	S
L201	C-1	S
L202	C-2	S
L203	C-3	
L204	D-2	S
L205	C-2	S
L207	C-2	
L401		
L501	C-4	S
L502	C-4	S
L503	D-4	S
L504	C-4	S
L505	C-4	S
L506	B-3	S
L507	C-4	S
L508	B-4	S
L509	C-5	S
L513	C-4	
L801	C-7	S
L802	C-7	S
L803	C-7	S
L804	B-7	S
L805	B-7	S
L806	C-7	S
L807	A-7	S
L808	A-7	S
L809	A-7	S
L810	A-7	S
L811	B-7	S
L812	A-7	S
L813	B-6	S
L814	A-6	S
L815	B-6	S
L816	A-6	S
L817	A-5	S
L818	A-5	S
L819	B-5	S
L820	A-5	S
LF001	E-5	
LF031	F-5	
LF061	F-5	
LF081	F-5	
LF100	F-4	
LF101	F-4	
LF102	F-3	
LF801	A-7	
LF802	A-7	
LF803	A-6	
LF804	A-6	
FL805	A-6	
FL806	A-5	
FL807	A-5	
Q001	E-5	S
Q003	E-6	S
Q004	E-6	S
Q005	E-7	S
Q008	E-7	S
Q031	E-5	S
Q033	E-6	S
Q034	E-6	S
Q035	E-7	S
Q036	E-7	S
Q037	E-7	S
Q038	F-7	S
Q061	F-5	S
Q063	F-6	S
Q064	F-6	S
Q065	F-7	S
Q066	F-7	S
Q067	F-7	S
Q068	F-7	S
Q081	F-6	S
Q082	F-6	S
Q083	F-6	
Q084	F-6	
Q091	A-4	S
Q092	A-3	S
Q093	A-4	S
Q100	F-4	
Q101	F-4	
Q102	F-3	S
Q103	F-3	S
Q105	F-2	S
Q106	F-2	S
Q107	F-2	
Q108	E-2	S
Q109	E-3	S
Q110	E-2	S
Q111	E-2	S
Q201	D-1	S
Q202	C-2	S
Q203	C-2	S
Q204	D-2	S
Q205	D-2	S
Q206	D-2	S
Q207	D-2	S
Q501	B-4	S
Q502	C-4	
Q701	E-7	
Q801	C-7	S
Q802	C-6	S
Q803	C-6	S
Q804	C-6	
Q805	C-6	
Q806	A-7	S
Q807	A-7	S
Q808	A-7	
Q809	A-7	
Q810	A-7	S
Q811	A-7	S
Q812	A-7	
Q813	A-7	
Q814	A-6	S
Q815	B-6	S
Q816	A-6	
Q817	A-6	
Q818	A-6	S
Q819	B-6	S
Q820	A-6	
Q821	A-6	
Q822	A-6	S
Q823	A-5	S
Q824	A-5	
Q825	A-5	
Q826	A-5	S
Q827	A-5	S
Q828	A-5	
Q829	A-5	
Q830	A-4	
Q831	A-4	
X201	C-2	
X501	D-5	

S:SOLDERING SIDE

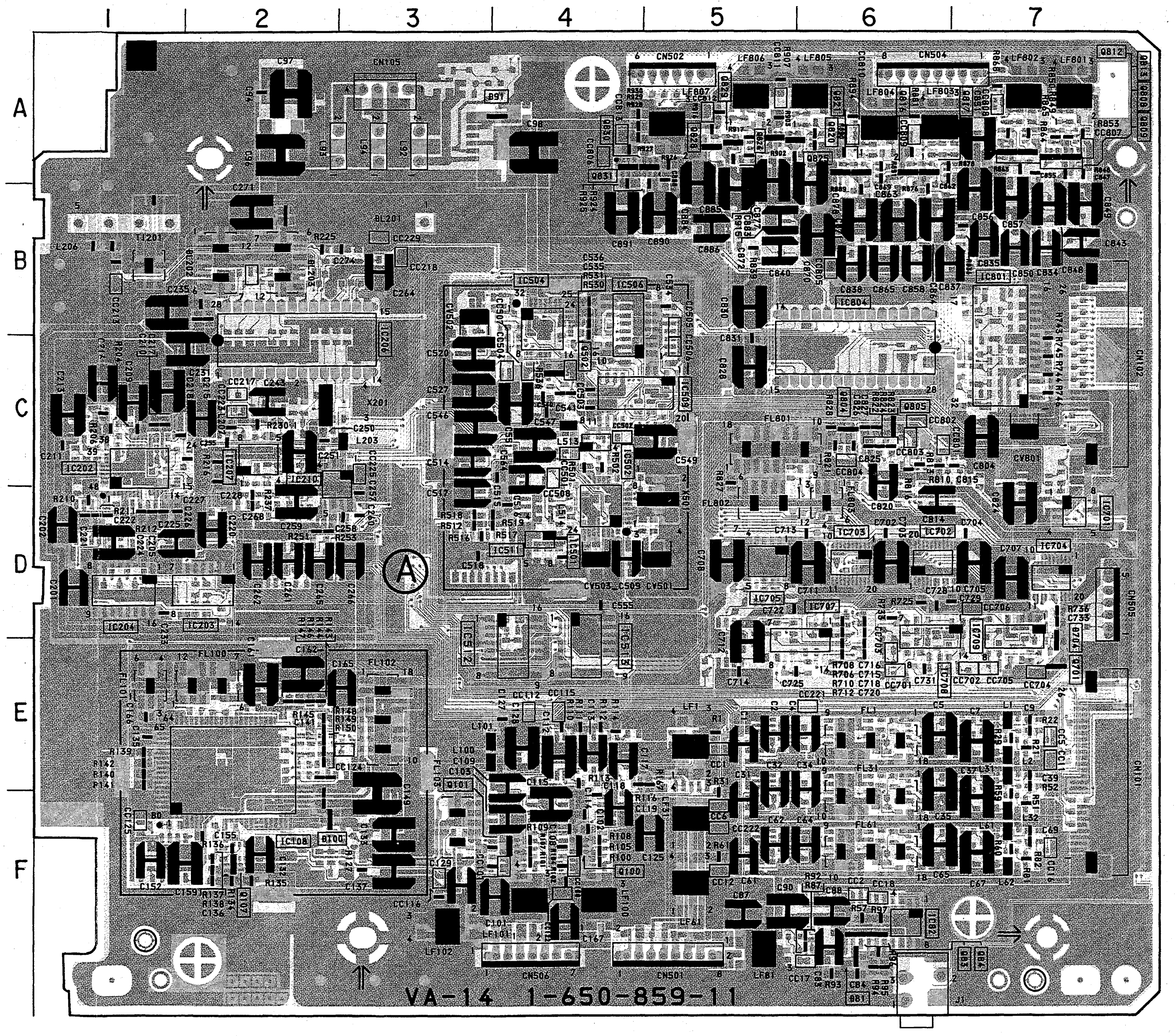


VA-14 -SOLDERING SIDE-

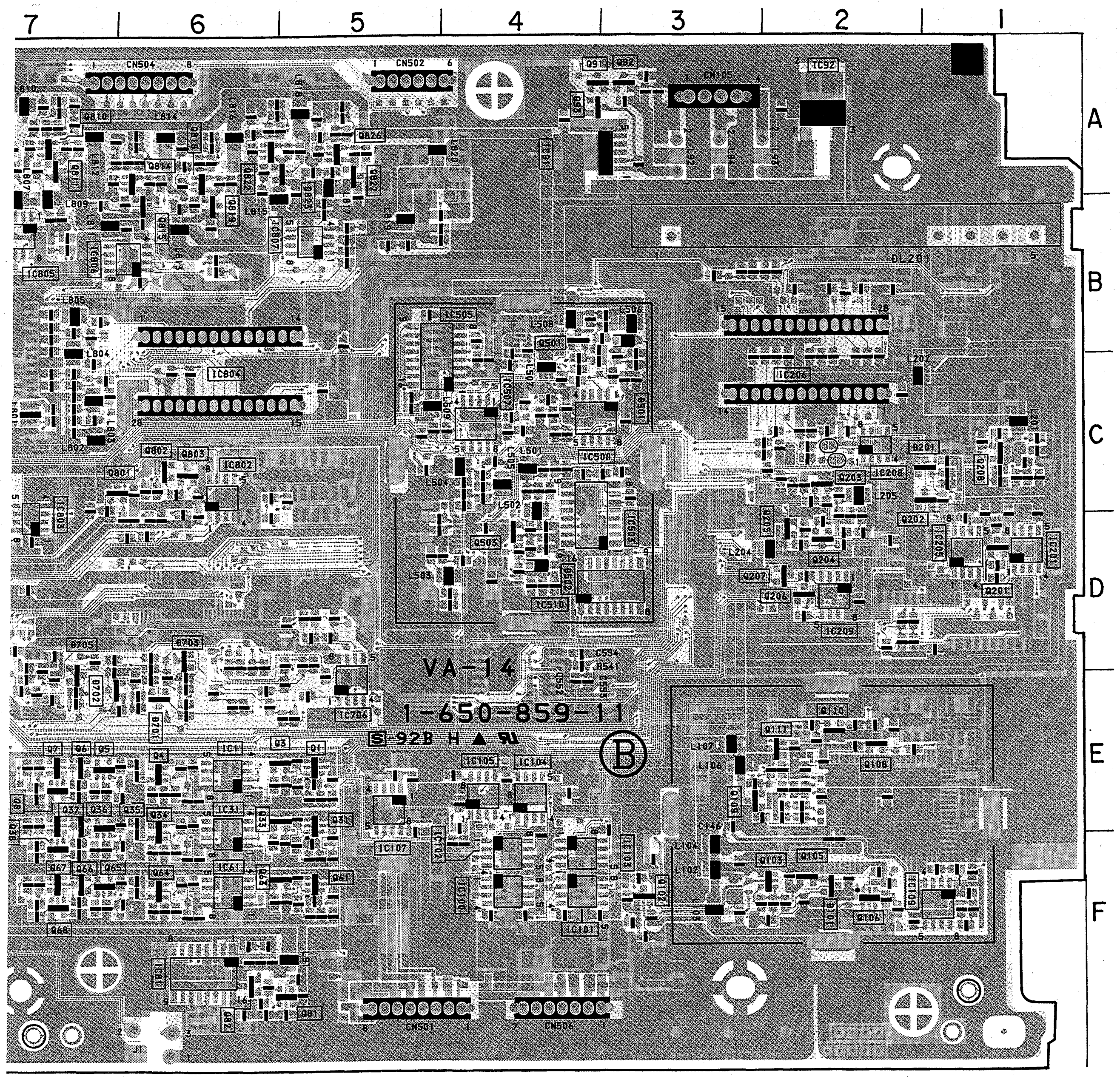



7
6
5
4
3
2
1
A
B
C
D
E
F
VA-14
1-650-859-11
B

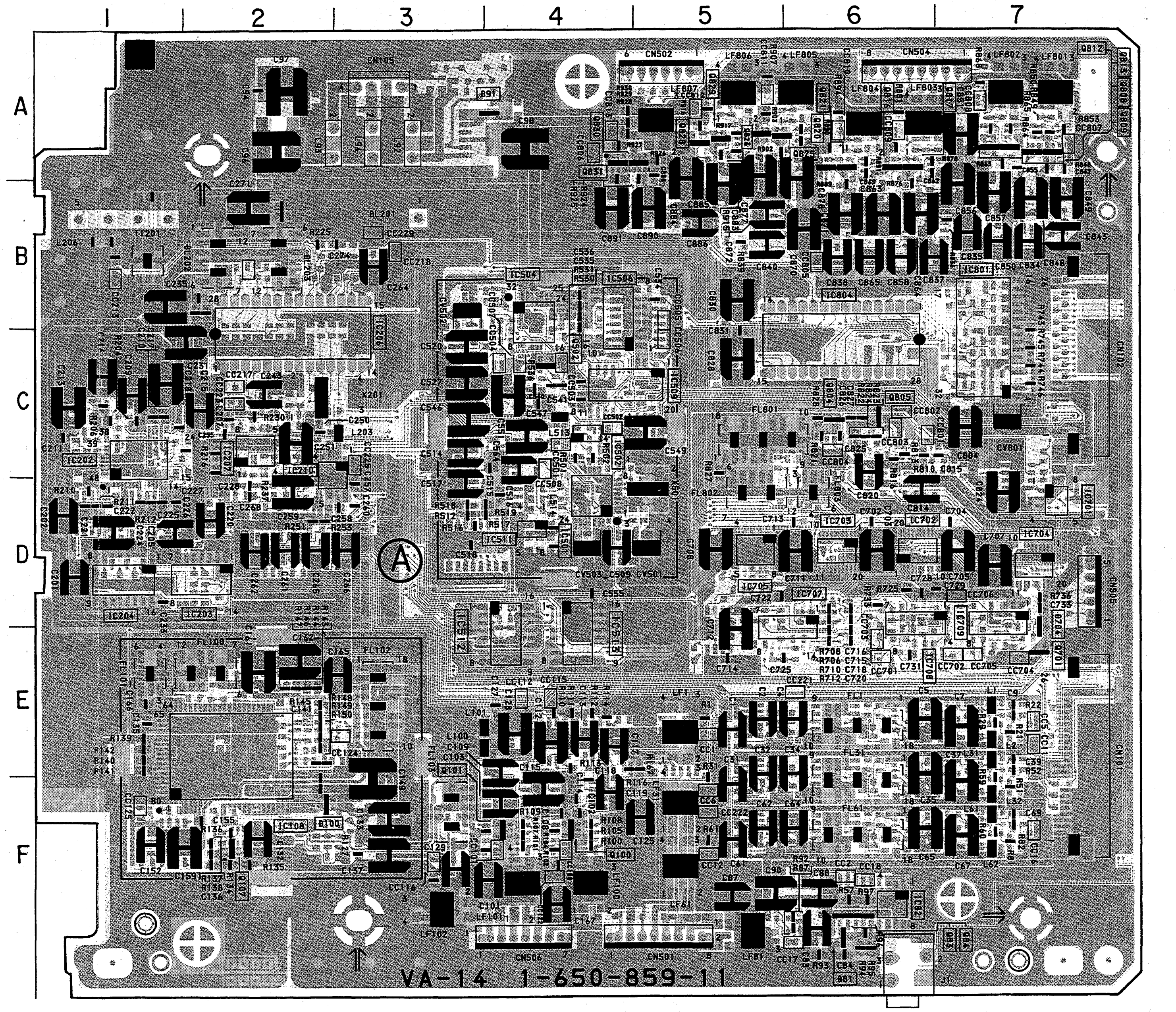
VA-14 -SOLDERING SIDE-


1
2
3
4
5
6
7
A
B
C
D
E
F
A
VA-14 1-650-859-11

VA-14 -COMPONENT SIDE-

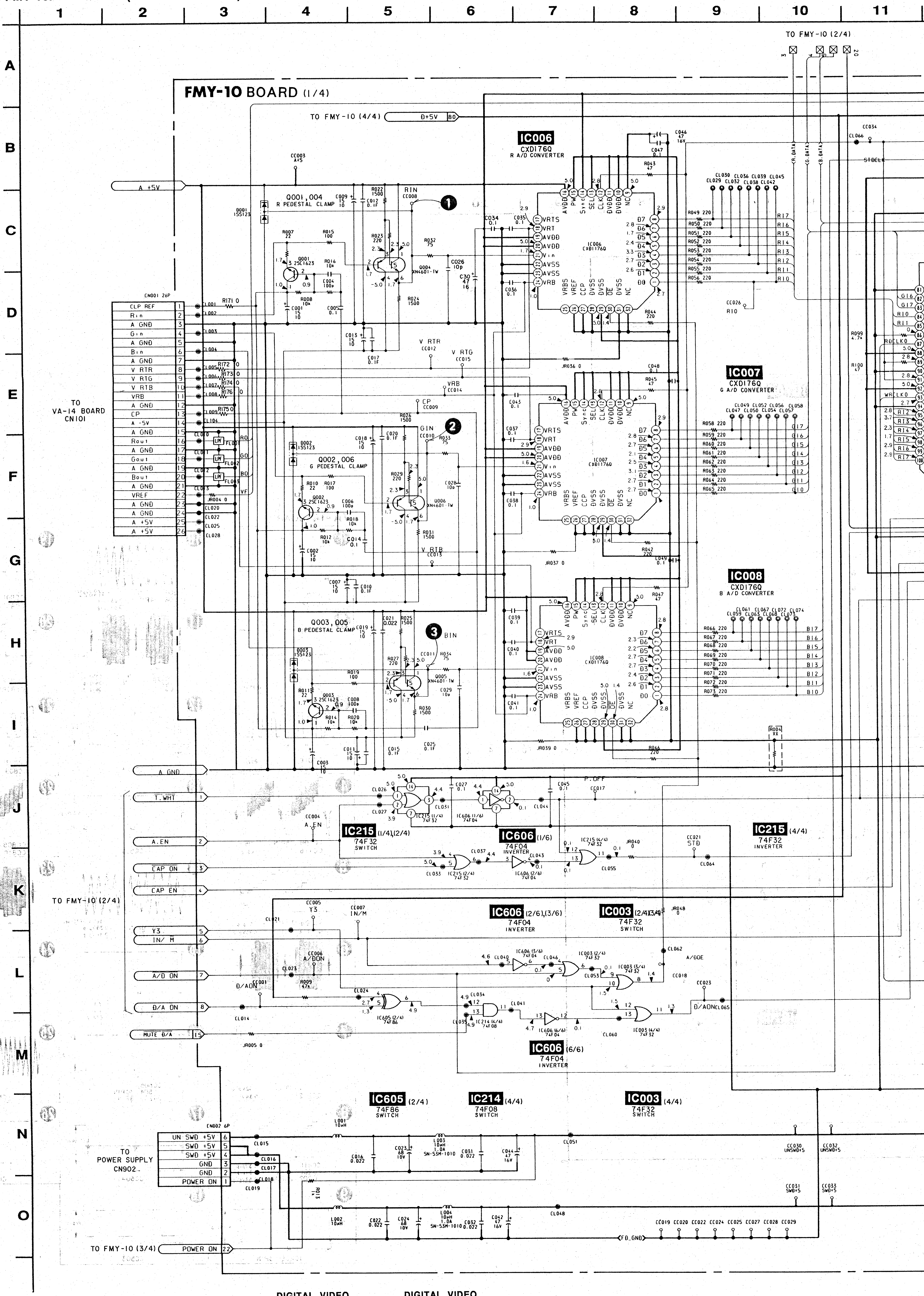

7
6
5
4
3
2
1
A
B
C
D
E
F
VA-14
1-650-859-11
B

VA-14 -SOLDERING SIDE-

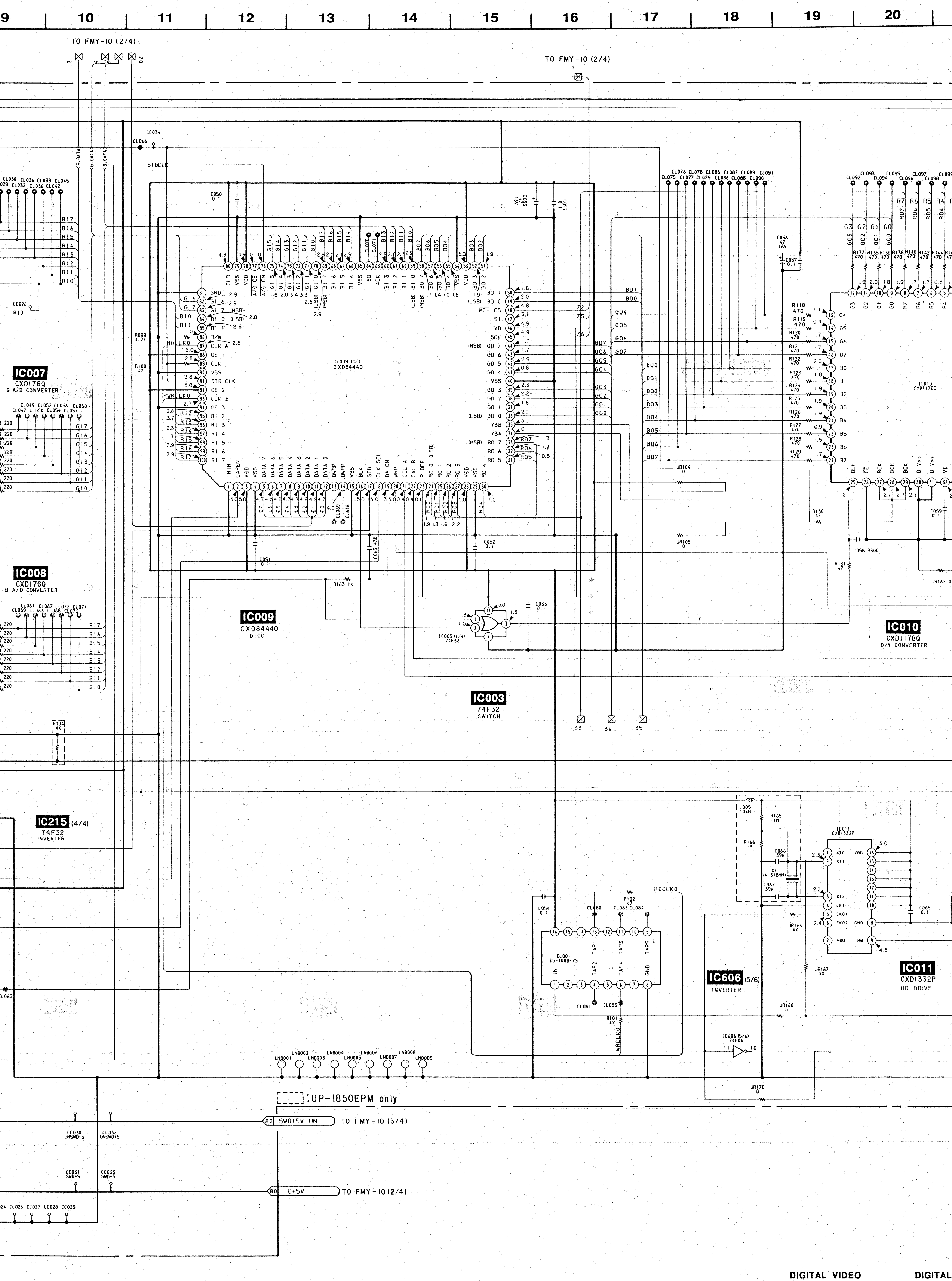

1
2
3
4
5
6
7
A
B
C
D
E
F
A
VA-14 1-650-859-11

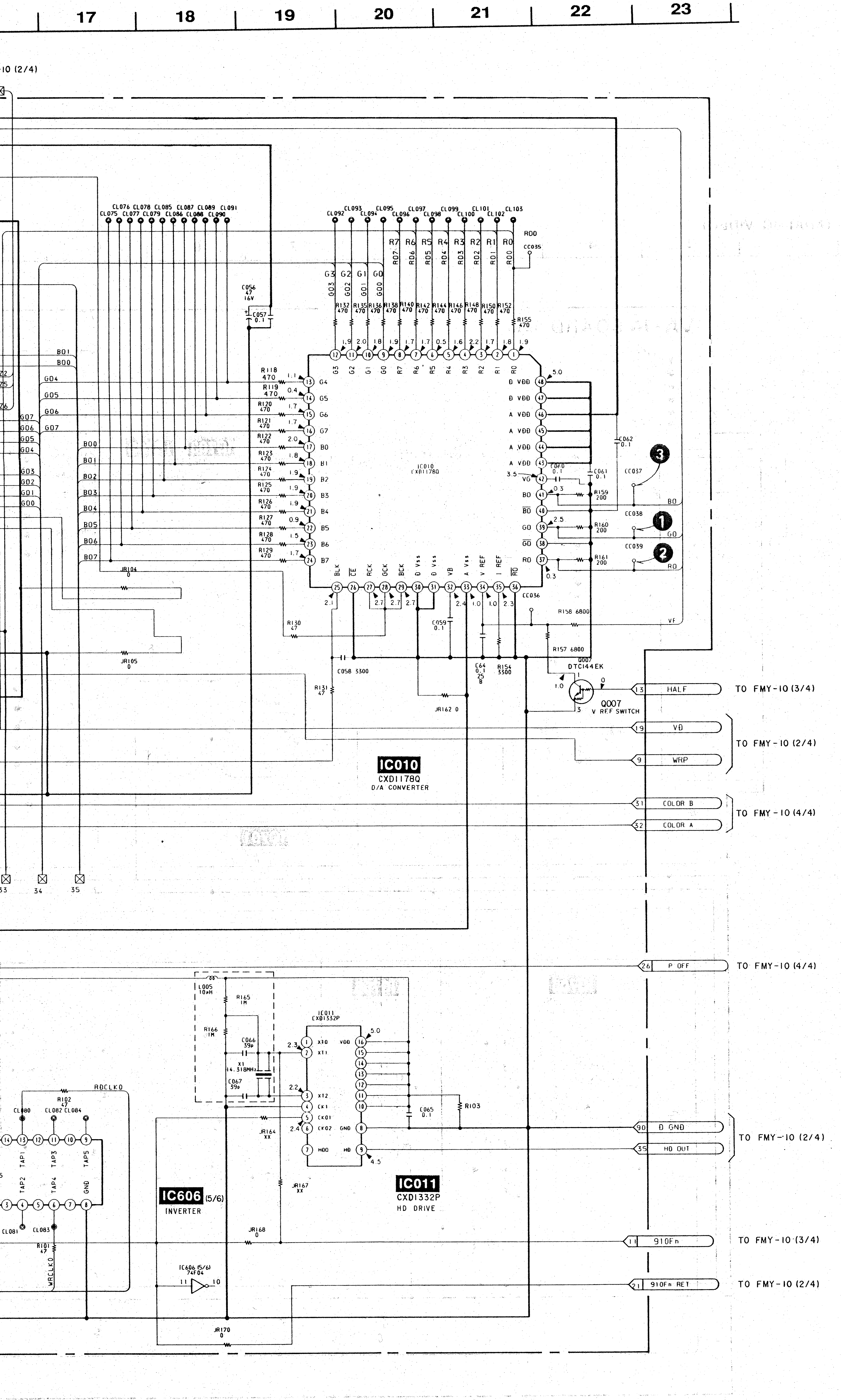
VA-14 -COMPONENT SIDE-

FMY-10P — 1/4 — (FRAME MEMORY)


1 2 3 4 5 6 7 8 9 10 11
A B C D E F G H I J K L M N O
FMY-10 BOARD (1/4)
TO FMY-10 (2/4)
TO FMY-10 (4/4)
D+5V 80
A +5V
IC006
CXD1760
R A/D CONVERTER
IC007
CXD1760
G A/D CONVERTER
IC008
CXD1760
B A/D CONVERTER
Q001, 004
R PEDESTAL CLAMP
Q002, 006
G PEDESTAL CLAMP
Q003, 005
B PEDESTAL CLAMP
RIN
GIN
BIN
V RTR
V RTG
V RTB
VRB
CP
CN001 26P
CLP REF
Rin
A GND
Gin
Bin
V RTR
V RTG
V RTB
VRB
CP
A -5V
Rout
Gout
Bout
VREF
A +5V
TO VA-14 BOARD CN101
A GND
T.WHT
A.EN
CAP ON
CAP EN
TO FMY-10 (2/4)
Y3
IN/M
A/D ON
D/A ON
MUTE D/A
IC215 (1/4),(2/4)
74F32
SWITCH
IC606 (1/6)
74F04
INVERTER
IC215 (4/4)
74F32
INVERTER
IC606 (2/6),(3/6)
74F04
INVERTER
IC003 (2/4),(3/4)
74F32
SWITCH
IC606 (6/6)
74F04
INVERTER
IC605 (2/4)
74F86
SWITCH
IC214 (4/4)
74F08
SWITCH
IC003 (4/4)
74F32
SWITCH
P.OFF
STD
A/DOE
D/AON
CN002 6P
UN SWD +5V
SWD +5V
SWD +5V
GND
GND
POWER ON
TO POWER SUPPLY CN902
TO FMY-10 (3/4)
POWER ON 22
FD_GND
R.DATA
G.DATA
B.DATA
STDCLK
RDCLKO
WRCLKO

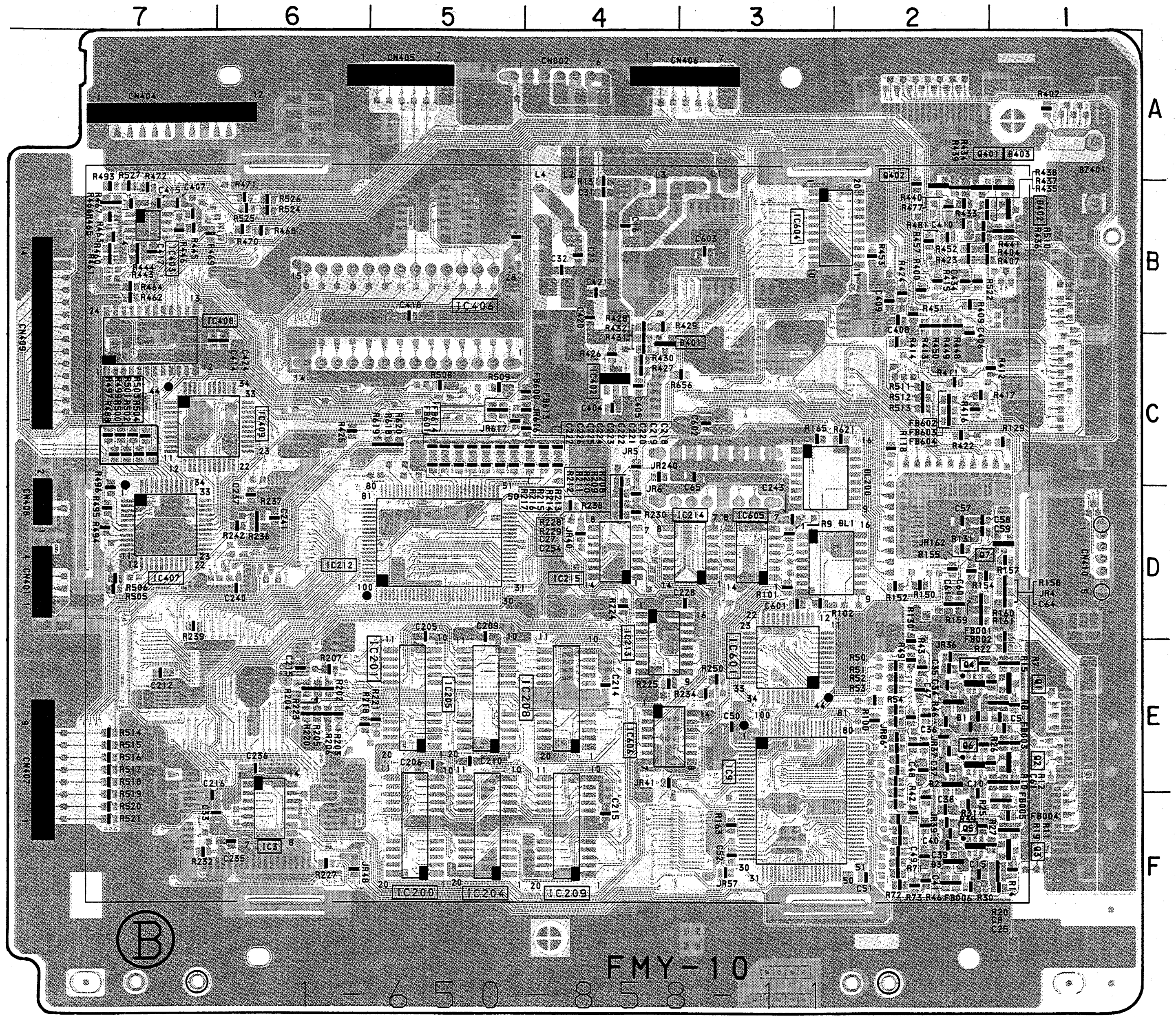
DIGITAL VIDEO DIGITAL VIDEO


9
10
11
12
13
14
15
16
17
18
19
20
TO FMY-10 (2/4)
TO FMY-10 (2/4)
IC007
CXD1176Q
G A/D CONVERTER
IC008
CXD1176Q
B A/D CONVERTER
IC009
CXD8444Q
DICC
IC009 DICC
CXD8444Q
IC003
74F32
SWITCH
IC003 (1/4)
74F32
IC010
CXD1178Q
D/A CONVERTER
IC011
CXD1332P
HD DRIVE
IC215 (4/4)
74F32
INVERTER
IC606 (5/6)
INVERTER
IC606 (5/6)
74F04
DL001
DS-1000-75
X1
14.318MHz
STDCLK
RDCLK0
WRCLK0
33
34
35
UP-1850EPM only
82 SWD+5V UN
TO FMY-10 (3/4)
80 D+5V
TO FMY-10 (2/4)
CC030 UNSWD+5
CC032 UNSWD+5
CC031 SWD+5
CC033 SWD+5

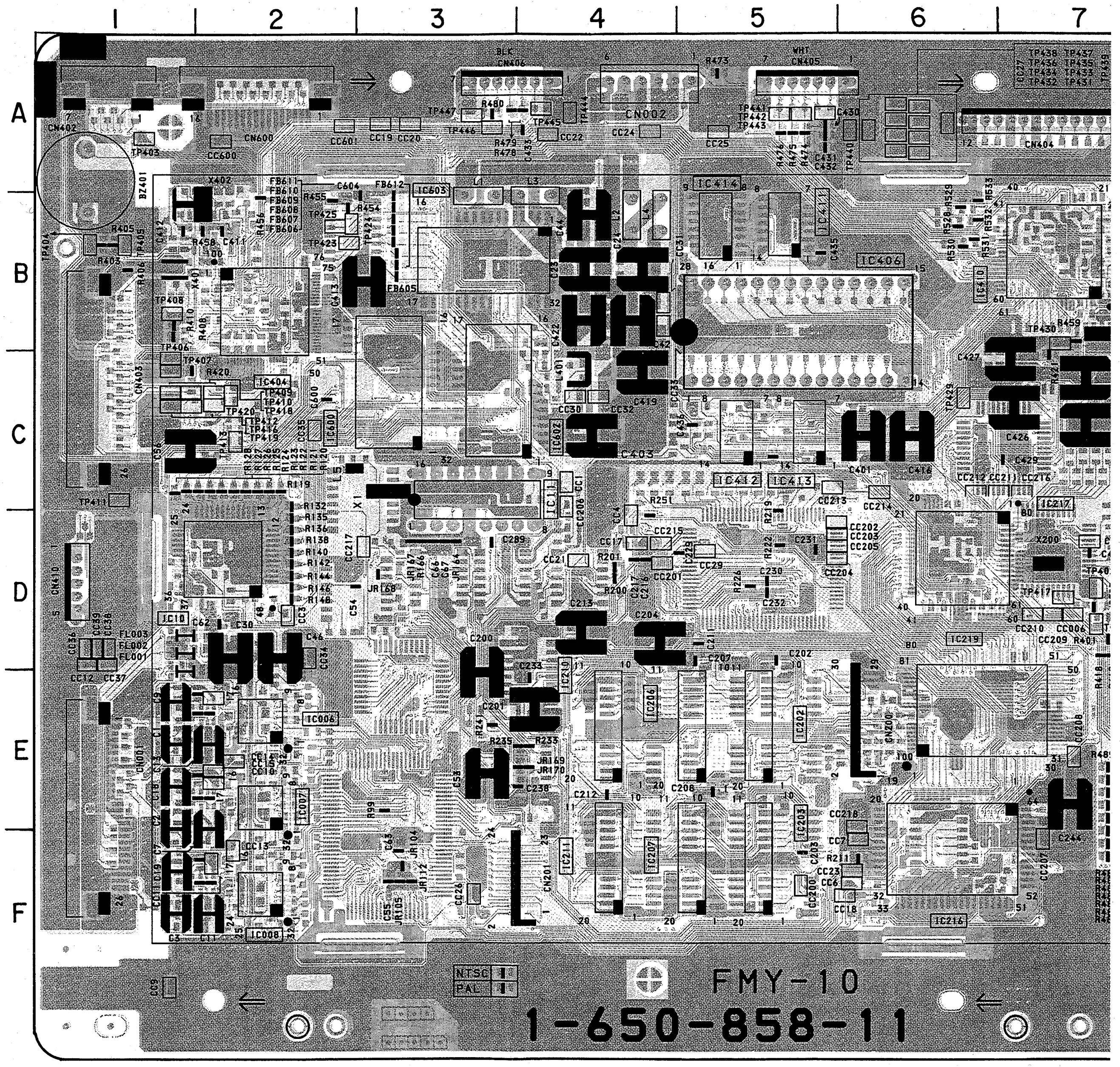


17
18
19
20
21
22
23
-10 (2/4)
IC010
CXD1178Q
D/A CONVERTER
Q007
DTC144EK
V REF SWITCH
HALF
TO FMY-10 (3/4)
VD
WRP
TO FMY-10 (2/4)
COLOR B
COLOR A
TO FMY-10 (4/4)
P OFF
TO FMY-10 (4/4)
IC011
CXD1332P
HD DRIVE
D GND
HD OUT
TO FMY-10 (2/4)
910Fn
TO FMY-10 (3/4)
910Fn RET
TO FMY-10 (2/4)
IC606 (5/6)
INVERTER
IC606 (5/6) 74F04
X1 14.318MHz
L005 10μH
R165 1M
R166 1M
C066 39p
C067 39p
R103
C065 0.1
JR164 XX
JR167 XX
JR168 0
JR170 0
RBCLKO
WRCLKO
R102 47
R101 47
TAP1
TAP2
TAP3
TAP4
TAP5
GND
CL080
CL081
CL082
CL083
CL084
C056 47 16V
C057 0.1
C058 3300
C059 0.1
C062 0.1
C061 0.1
C040 0.1
C64 0.1 25 B
R154 3300
R157 6800
R158 6800
R159 200
R160 200
R161 200
R130 47
R131 47
JR104 0
JR105 0
JR162 0
CC035
CC036
CC037
CC038
CC039
R00
BO
GO
RO
VF
G3
G2
G1
G0
R7
R6
R5
R4
R3
R2
R1
R0
D VDD
A VDD
VG
BLK
CE
RCK
GCK
BCK
D Vss
VB
A Vss
V REF
I REF
B00
B01
B02
B03
B04
B05
B06
B07
G04
G05
G06
G07
33
34
35

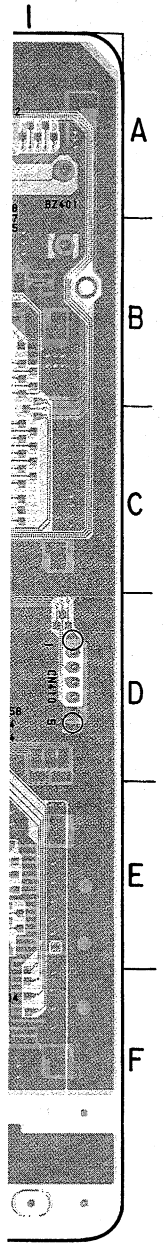
FMY-10P (FRAME MEMORY)


7
6
5
4
3
2
1
A
B
C
D
E
F
FMY-10
1-650-858-11

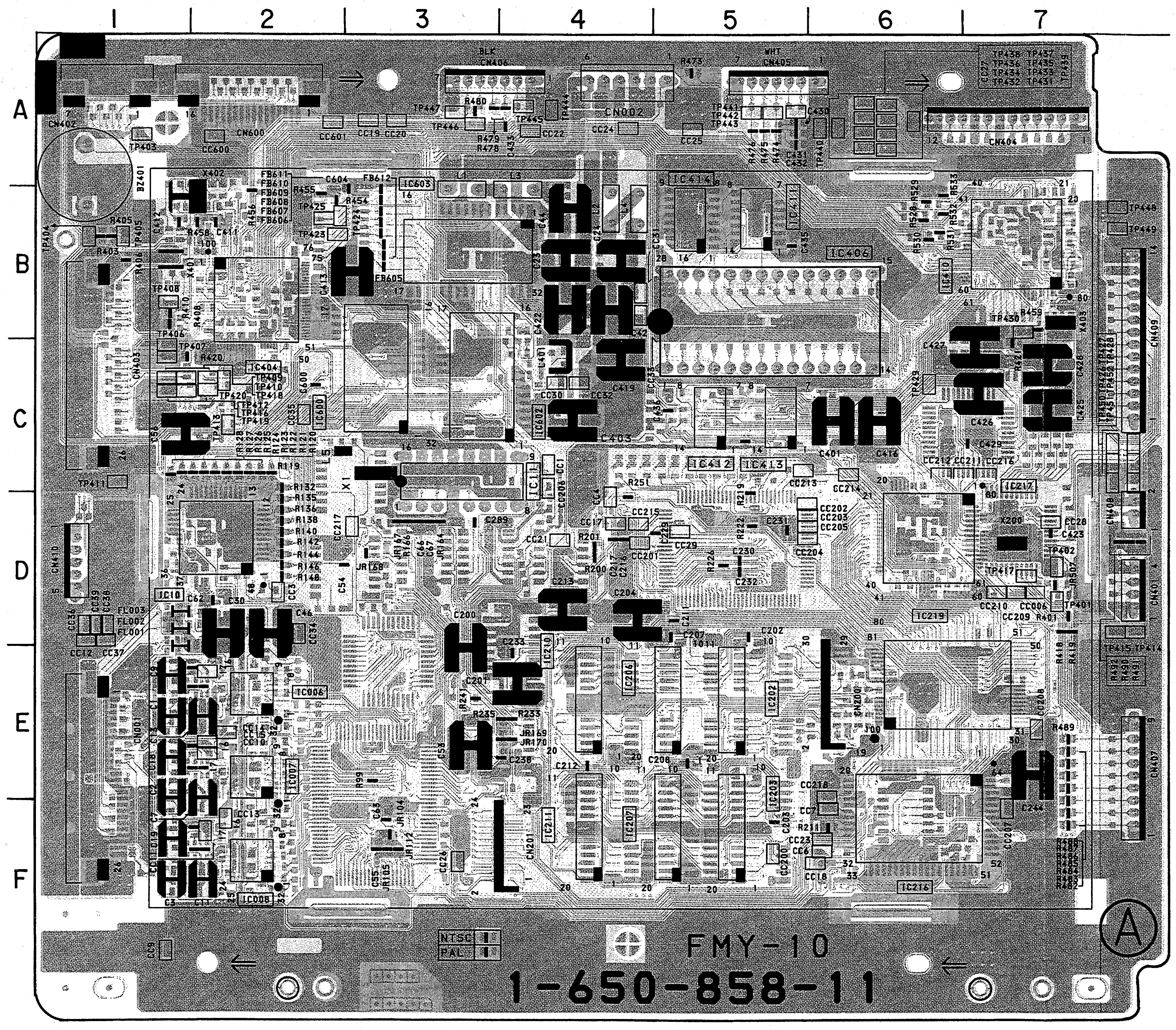
FMY-10 -SOLDERING SIDE-


1
2
3
4
5
6
7
A
B
C
D
E
F
FMY-10
1-650-858-11
NTSC
PAL

FMY-10 -COMPONE


1
A
B
C
D
E
F
BZ401

ERING SIDE-


1
2
3
4
5
6
7
A
B
C
D
E
F
FMY-10
1-650-858-11
NTSC
PAL
CN402
CN406
CN002
CN405
CN404
CN403
CN410
CN001
CN409
CN408
CN401
CN407
BZ401
X402
X401
X200
IC414
IC406
IC603
IC410
IC412
IC413
IC217
IC219
IC010
IC006
IC007
IC008
IC211
IC210
IC204
IC202
IC203
IC207
IC201
IC216
A

FMY-10 -COMPONENT SIDE-

FMY-10P BOARD

BZ401	A-1	
CN001	E-1	
CN002	A-4	
CN401	D-7	
CN402	A-1	
CN403	C-1	
CN404	A-7	
CN405	A-5	
CN406	A-3	
CN407	E-7	
CN408	D-7	
CN409	C-7	
CN410	D-1	
CN600	A-6	
D001	E-2	S
D002	E-2	S
D003	F-2	S
D401	C-4	S
D402	B-1	S
D403	B-1	S
DL001	D-3	S
DL200	C-3	S
FB001	D-1	S
FB002	E-1	S
FB003	E-1	S
FB004	F-1	S
FB005	F-1	S
FB006	F-2	S
FB600	C-4	S
FB601	C-5	S
FB602	C-2	S
FB603	C-2	S
FB604	C-2	S
FB605	B-3	
FB606	B-3	
FB607	B-3	
FB608	B-3	
FB609	B-3	
FB610	B-3	
FB611	B-3	
FB612	B-3	
FB613	C-4	S
FB614	C-5	S
FL001	D-1	
FL002	D-1	
FL003	D-1	
IC003	F-6	S
IC006	E-2	
IC007	E-2	
IC008	F-2	
IC009	F-3	S
IC010	D-2	
IC200	F-5	S
IC201	E-5	S
IC204	F-5	S
IC205	E-5	S
IC208	E-4	S
IC209	F-4	S
IC212	D-5	S
IC213	E-4	S
IC214	D-3	S
IC215	D-4	S
IC216	F-6	
IC217	D-6	
IC219	E-6	
IC402	C-4	S
IC403	B-7	S
IC404	B-2	
IC406	B-5	
IC407	D-7	S
IC408	C-7	S
IC409	C-7	S
IC410	B-7	
IC411	B-5	
IC412	C-5	
IC413	C-5	
IC414	B-5	
IC600	C-3	
IC601	E-3	S
IC602	C-3	
IC603	B-3	
IC604	B-2	S
IC605	D-3	S
IC606	E-4	S
JR004	D-1	S
JR005	C-4	S
JR036	E-2	S
JR037	E-2	S
JR039	F-2	S
JR040	D-4	S
JR048	F-6	S
JR104	F-3	
JR105	F-3	
JR162	D-2	S
JR168	D-3	
JR170	E-4	
L001	B-3	
L002	B-4	
L003	B-4	
L004	B-4	
Q001	E-1	S
Q002	E-1	S
Q003	F-1	S
Q004	E-2	S
Q005	F-2	S
Q006	E-2	S
Q007	D-1	S
Q401	B-2	S
Q402	B-2	S
X200	D-7	
X401	B-1	
X402	B-2	
X403	B-7	

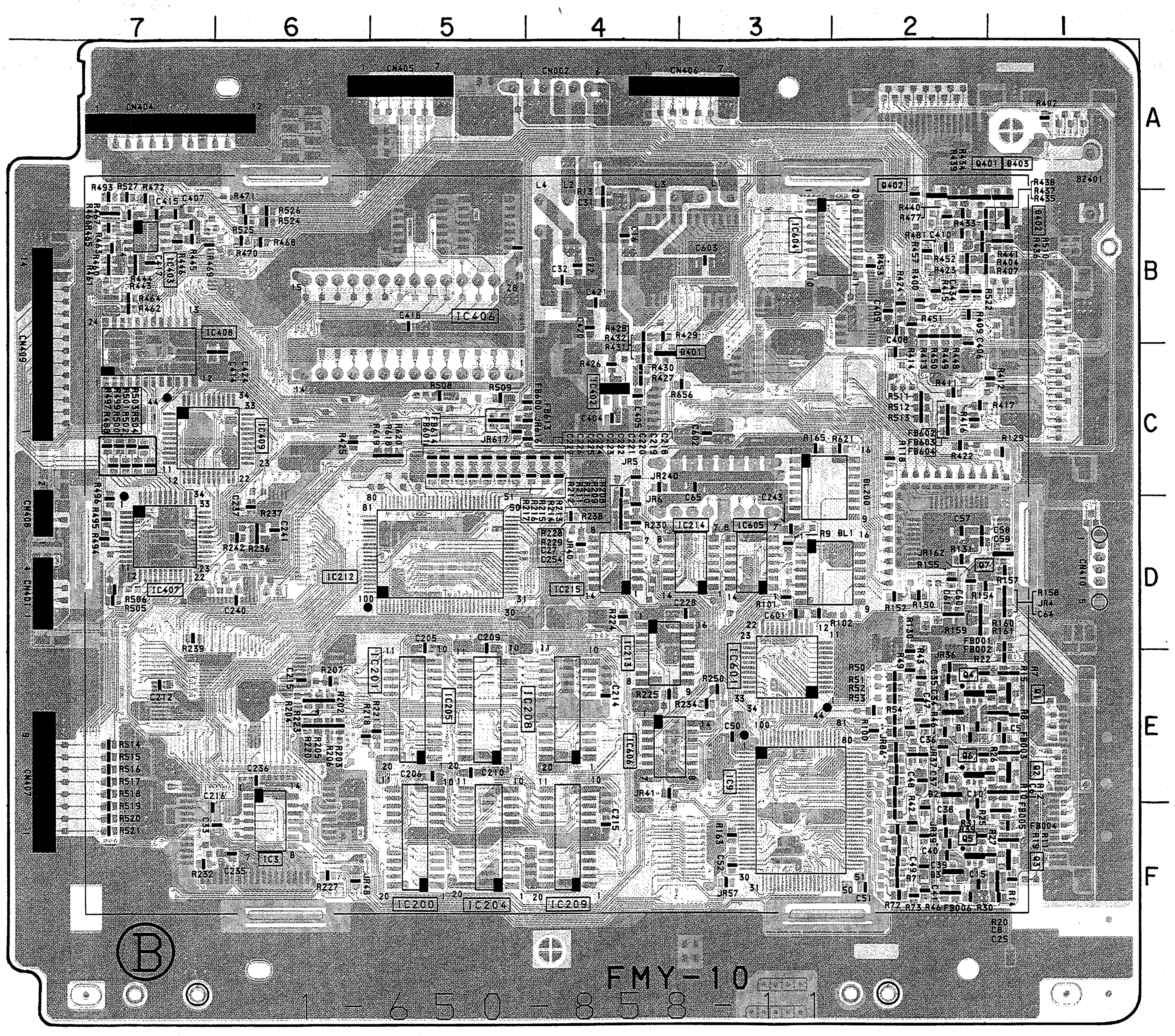
S:SOLDERING SIDE

FMY-10P (FRAME MEMORY)

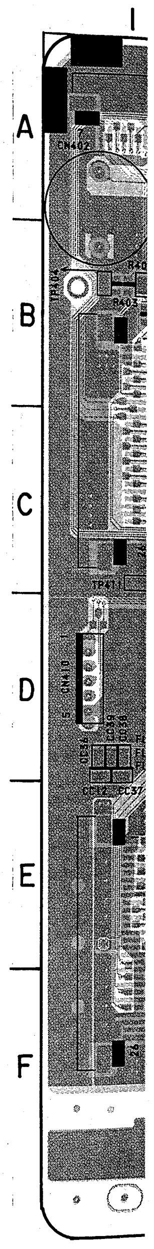
FMY-10P BOARD

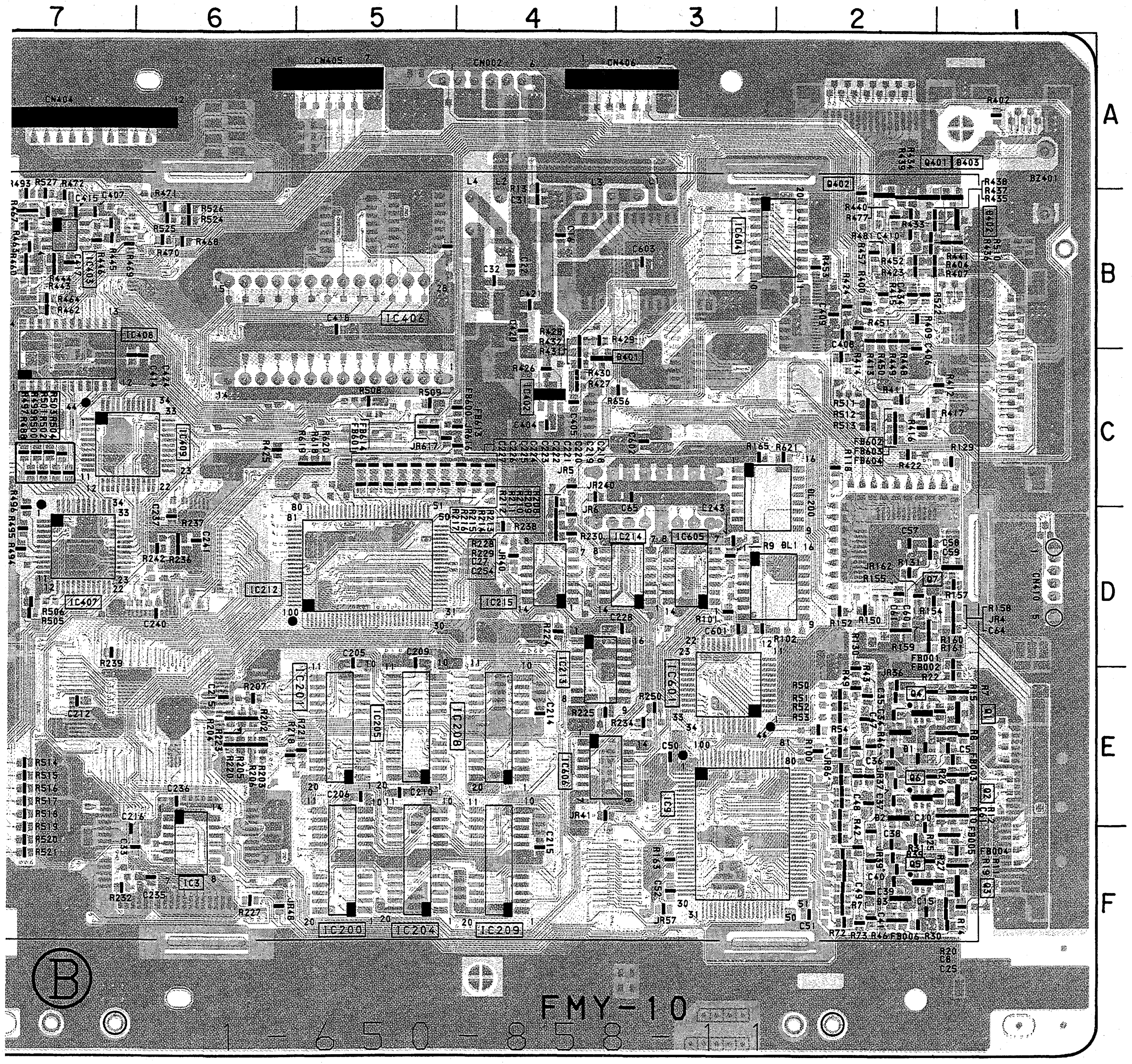
BZ401	A-1	
CN001	E-1	
CN002	A-4	
CN401	D-7	
CN402	A-1	
CN403	C-1	
CN404	A-7	
CN405	A-5	
CN406	A-3	
CN407	E-7	
CN408	D-7	
CN409	C-7	
CN410	D-1	
CN600	A-6	
D001	E-2	S
D002	E-2	S
D003	F-2	S
D401	C-4	S
D402	B-1	S
D403	B-1	S
DL001	D-3	S
DL200	C-3	S
FB001	D-1	S
FB002	E-1	S
FB003	E-1	S
FB004	F-1	S
FB005	F-1	S
FB006	F-2	S
FB600	C-4	S
FB601	C-5	S
FB602	C-2	S
FB603	C-2	S
FB604	C-2	S
FB605	B-3	
FB606	B-3	
FB607	B-3	
FB608	B-3	
FB609	B-3	
FB610	B-3	
FB611	B-3	
FB612	B-3	
FB613	C-4	S
FB614	C-5	S
FL001	D-1	
FL002	D-1	
FL003	D-1	
IC003	F-6	S
IC006	E-2	
IC007	E-2	
IC008	F-2	
IC009	F-3	S
IC010	D-2	
IC200	F-5	S
IC201	E-5	S
IC204	F-5	S
IC205	E-5	S
IC208	E-4	S
IC209	F-4	S
IC212	D-5	S
IC213	E-4	S
IC214	D-3	S
IC215	D-4	S
IC216	F-6	
IC217	D-6	
IC219	E-6	
IC402	C-4	S
IC403	B-7	S
IC404	B-2	
IC406	B-5	
IC407	D-7	S
IC408	C-7	S
IC409	C-7	S
IC410	B-7	
IC411	B-5	
IC412	C-5	
IC413	C-5	
IC414	B-5	
IC600	C-3	
IC601	E-3	S
IC602	C-3	
IC603	B-3	
IC604	B-2	S
IC605	D-3	S
IC606	E-4	S
JR004	D-1	S
JR005	C-4	S
JR036	E-2	S
JR037	E-2	S
JR039	F-2	S
JR040	D-4	S
JR048	F-6	S
JR104	F-3	
JR105	F-3	
JR162	D-2	S
JR168	D-3	
JR170	E-4	
L001	B-3	
L002	B-4	
L003	B-4	
L004	B-4	
Q001	E-1	S
Q002	E-1	S
Q003	F-1	S
Q004	E-2	S
Q005	F-2	S
Q006	E-2	S
Q007	D-1	S
Q401	B-2	S
Q402	B-2	S
X200	D-7	
X401	B-1	
X402	B-2	
X403	B-7	

S:SOLDERING SIDE

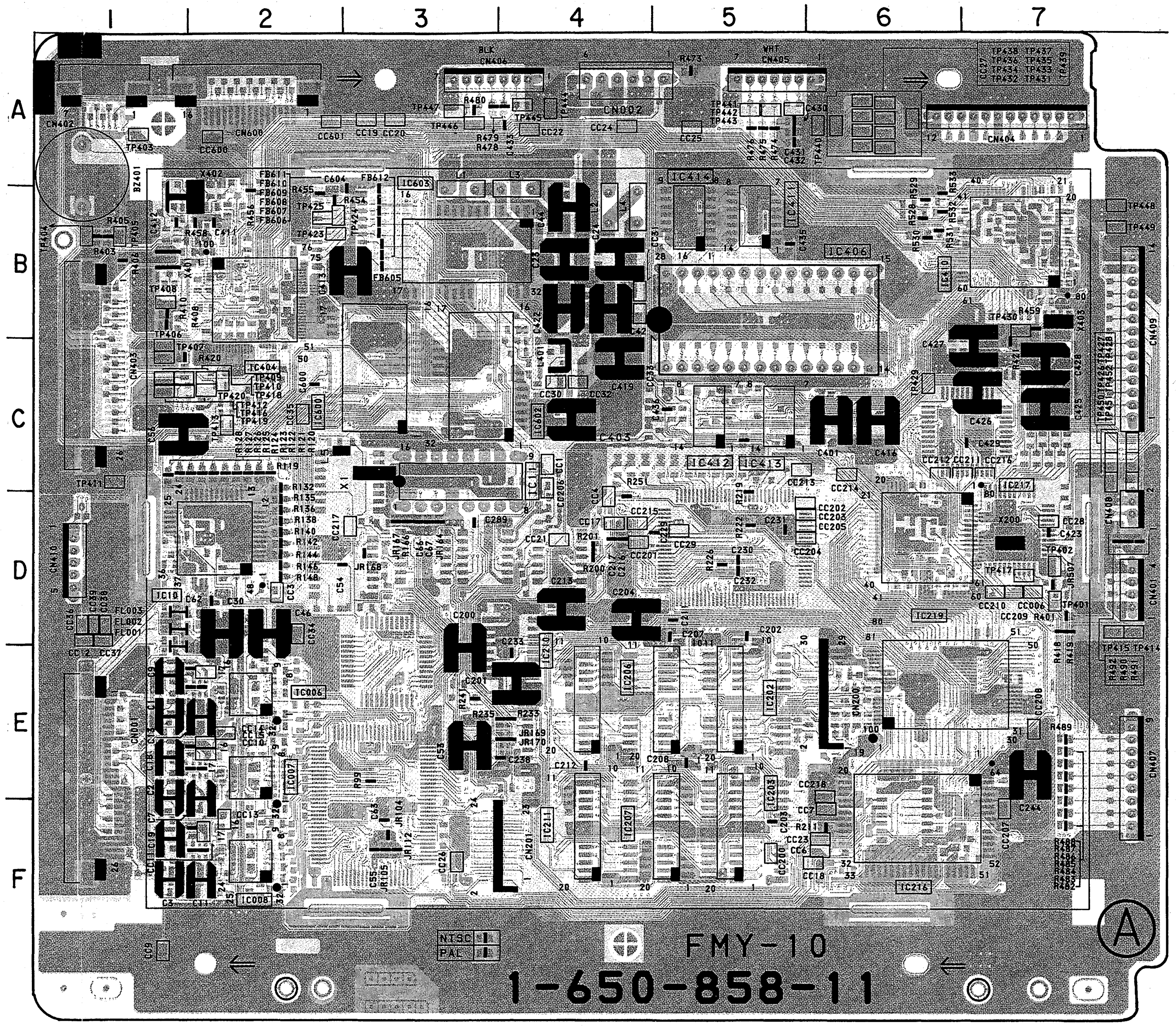


FMY-10 -SOLDERING SIDE-



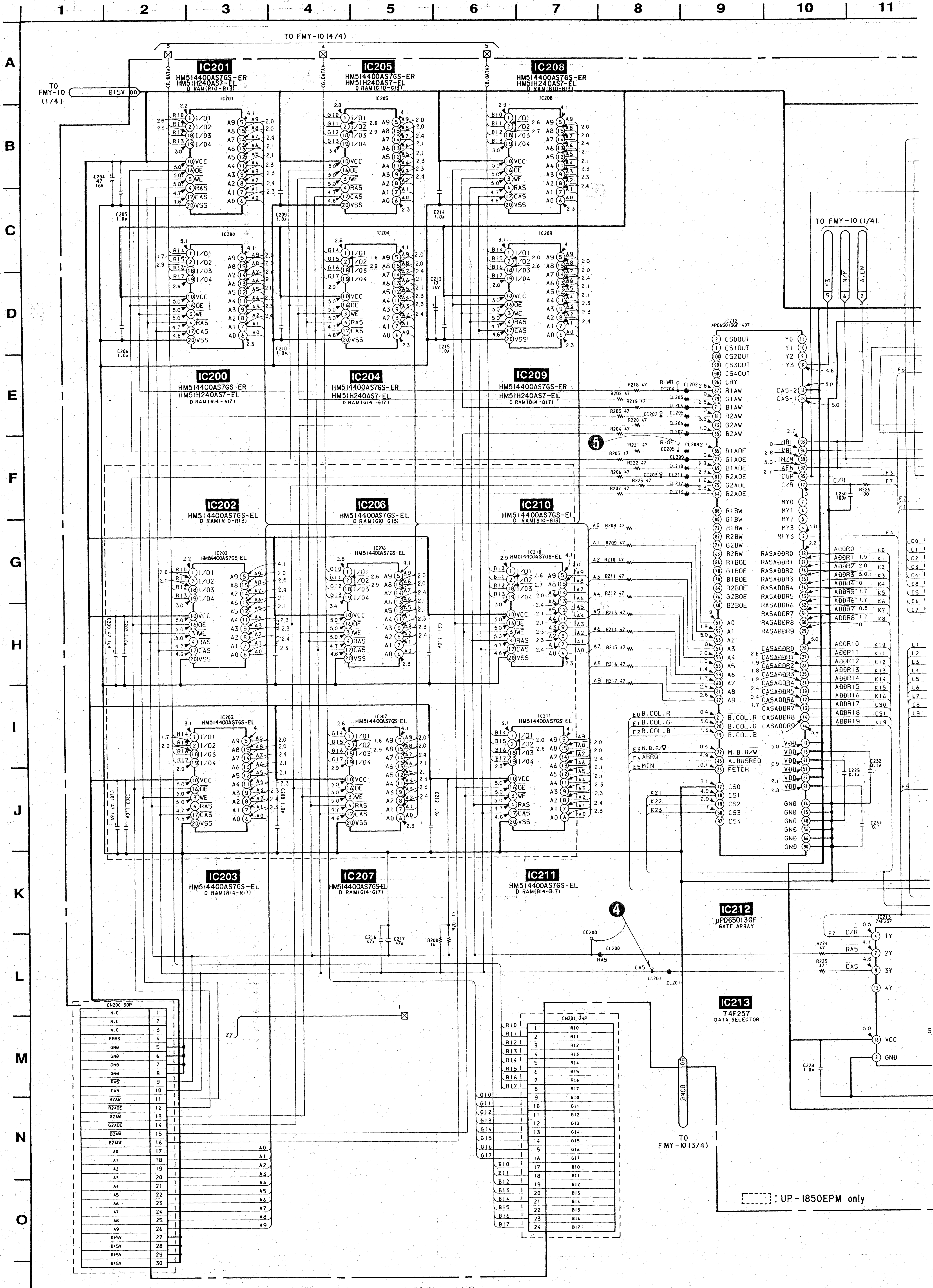

7
6
5
4
3
2
1
A
B
C
D
E
F
CN404
CN405
CN406
IC406
IC212
IC200
IC204
IC209
FMY-10
1-650-858-11

FMY-10 -SOLDERING SIDE-


1
2
3
4
5
6
7
A
B
C
D
E
F
CN402
CN406
CN404
CN405
IC406
IC216
NTSC
PAL
FMY-10
1-650-858-11

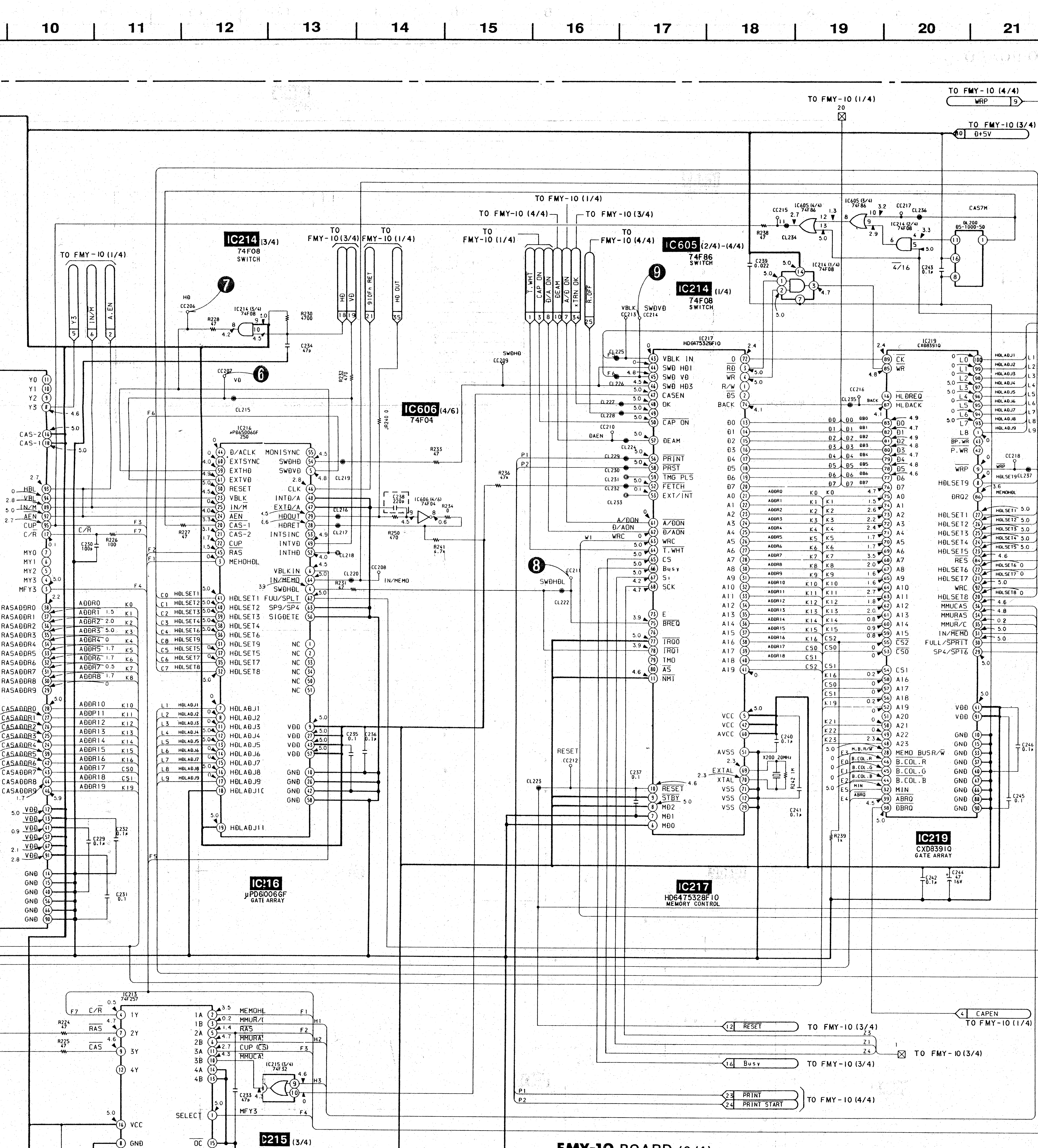
FMY-10 -COMPONENT SIDE-

FMY-10P — 2/4 — (FRAME MEMORY)



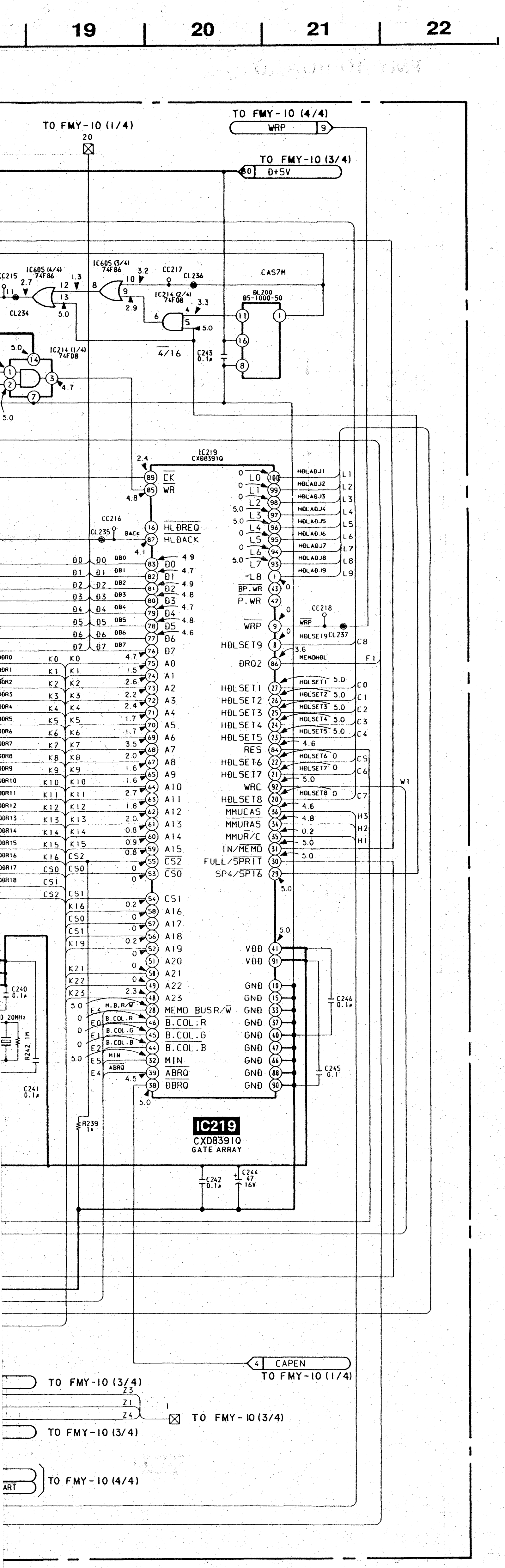
1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
TO FMY-10 (4/4)
TO FMY-10 (1/4)
D+5V
IC201
HM514400AS7GS-ER
HM51H240AS7-EL
D RAM(R10-R13)
IC205
HM514400AS7GS-ER
HM51H240AS7-EL
D RAM(G10-G13)
IC208
HM514400AS7GS-ER
HM51H240AS7-EL
D RAM(B10-B13)
IC200
HM514400AS7GS-ER
HM51H240AS7-EL
D RAM(R14-R17)
IC204
HM514400AS7GS-ER
HM51H240AS7-EL
D RAM(G14-G17)
IC209
HM514400AS7GS-ER
HM51H240AS7-EL
D RAM(B14-B17)
IC202
HM514400AS7GS-EL
D RAM(R10-R13)
IC206
HM514400AS7GS-EL
D RAM(G10-G13)
IC210
HM514400AS7GS-EL
D RAM(B10-B13)
IC203
HM514400AS7GS-EL
D RAM(R14-R17)
IC207
HM514400AS7GS-EL
D RAM(G14-G17)
IC211
HM514400AS7GS-EL
D RAM(B14-B17)
IC212
μPD65013GF
GATE ARRAY
IC213
74F257
DATA SELECTOR
CN200 30P
CN201 24P
TO FMY-10 (3/4)
DGND
TO FMY-10 (1/4)
Y3
IN/M
A.EN

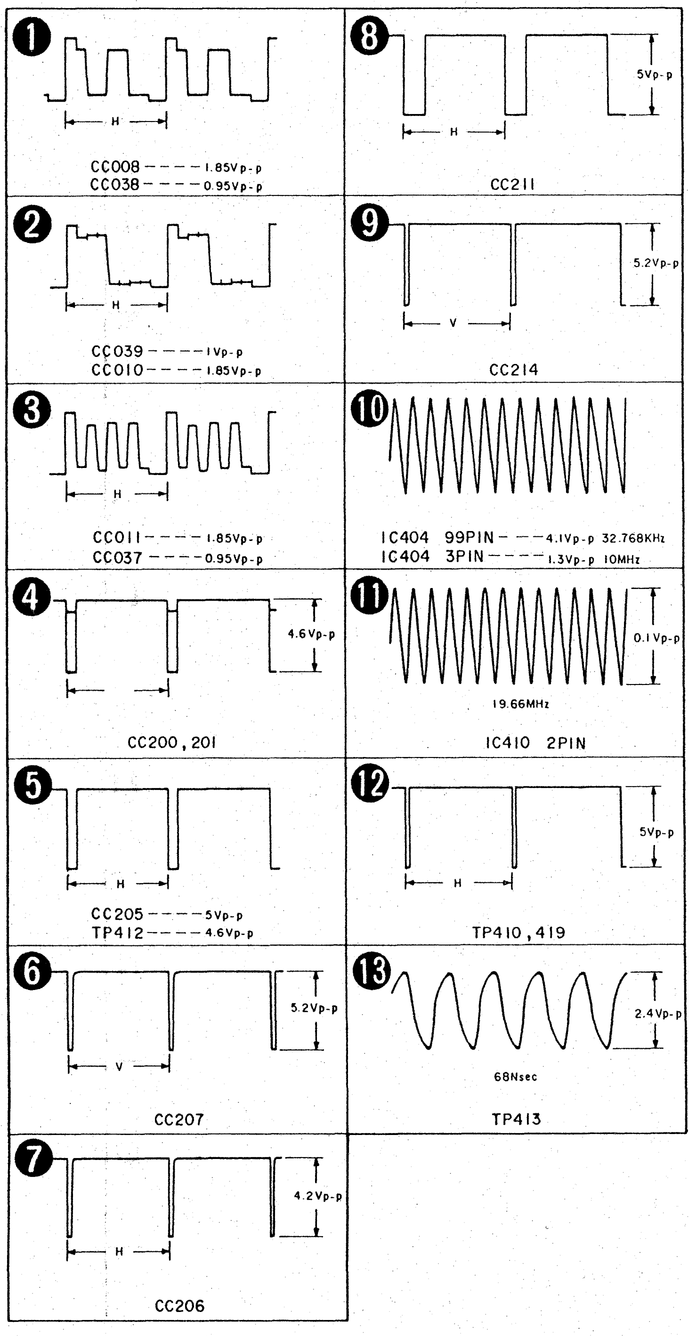
[ ]: UP-1850EPM only


10
11
12
13
14
15
16
17
18
19
20
21
TO FMY-10 (1/4)
TO FMY-10 (4/4)
WRP
TO FMY-10 (3/4)
B+5V
IC214 (3/4)
74F08
SWITCH
IC214 (1/4)
74F08
SWITCH
IC605 (2/4)-(4/4)
74F86
SWITCH
IC606 (4/6)
74F04
IC216
µPD65006GF
GATE ARRAY
IC217
HD6475328F10
MEMORY CONTROL
IC219
CXD8391Q
GATE ARRAY
IC213
74F257
IC215 (3/4)
74F32
SWITCH
X200 20MHz
DL200
CAS7M
RESET
Busy
PRINT
PRINT START
CAPEN
TO FMY-10 (3/4)
TO FMY-10 (4/4)
TO FMY-10 (1/4)

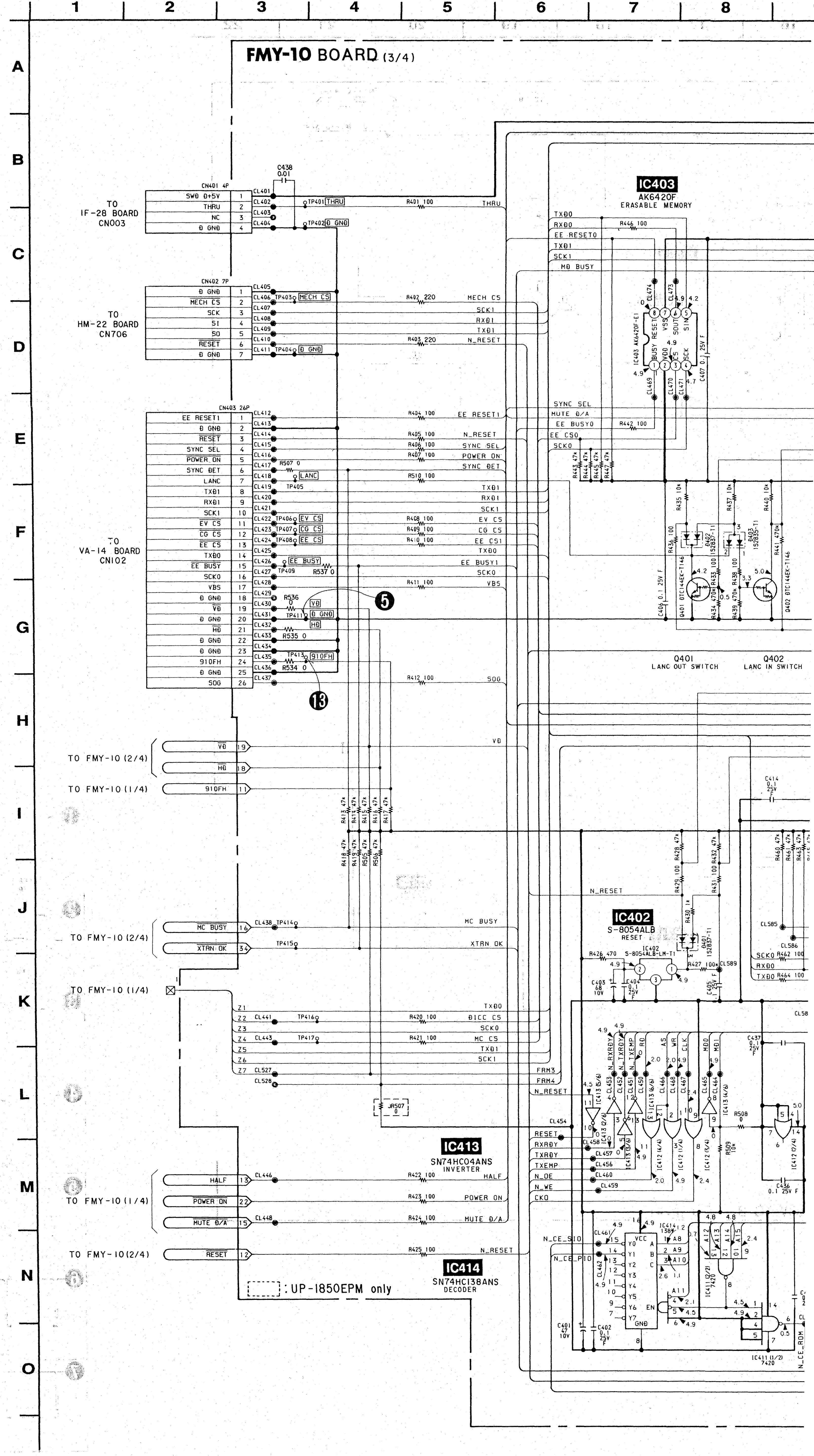
FMY-10 BOARD (2/4)

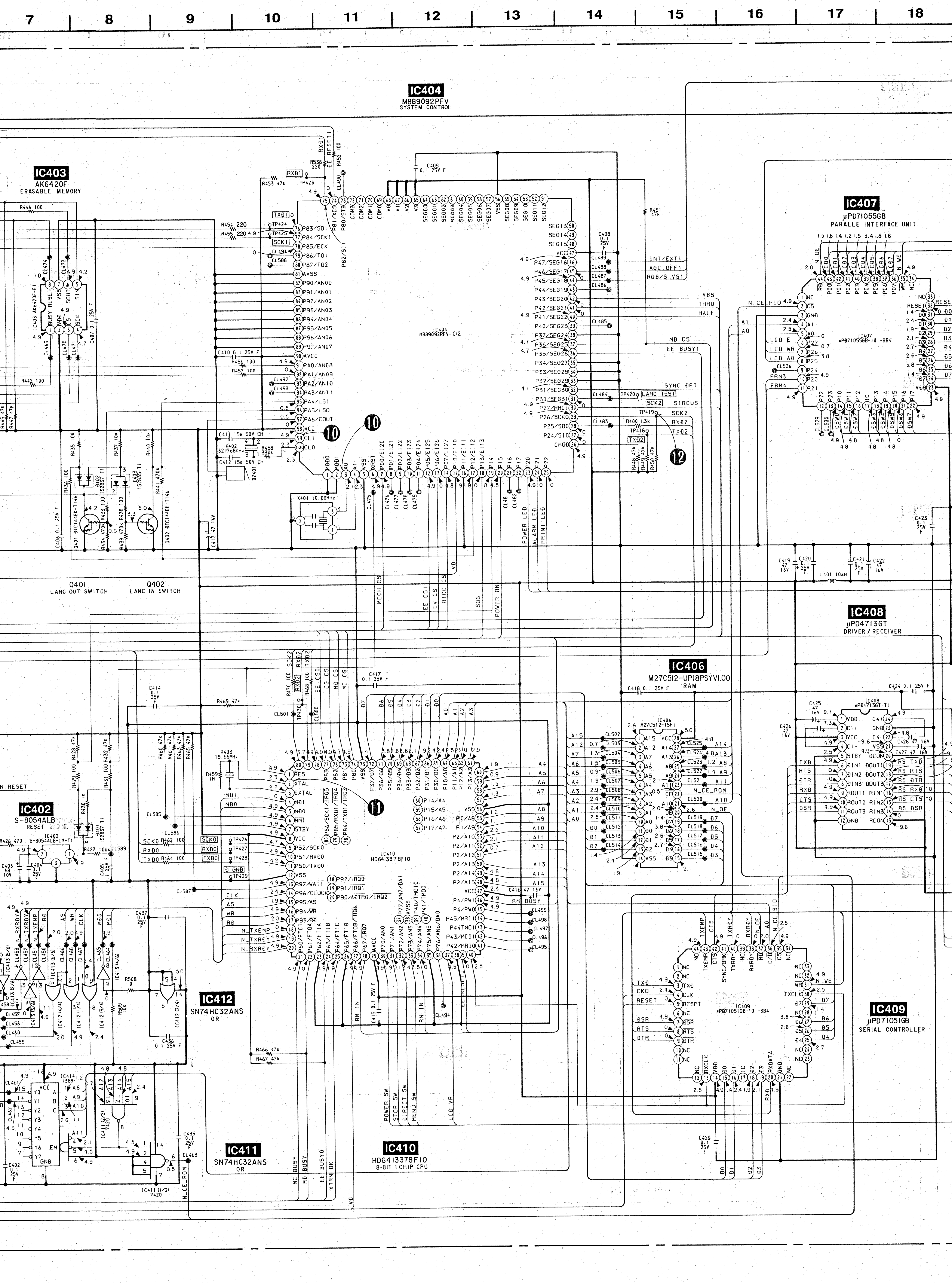
[ ] : UP-1850EPM only

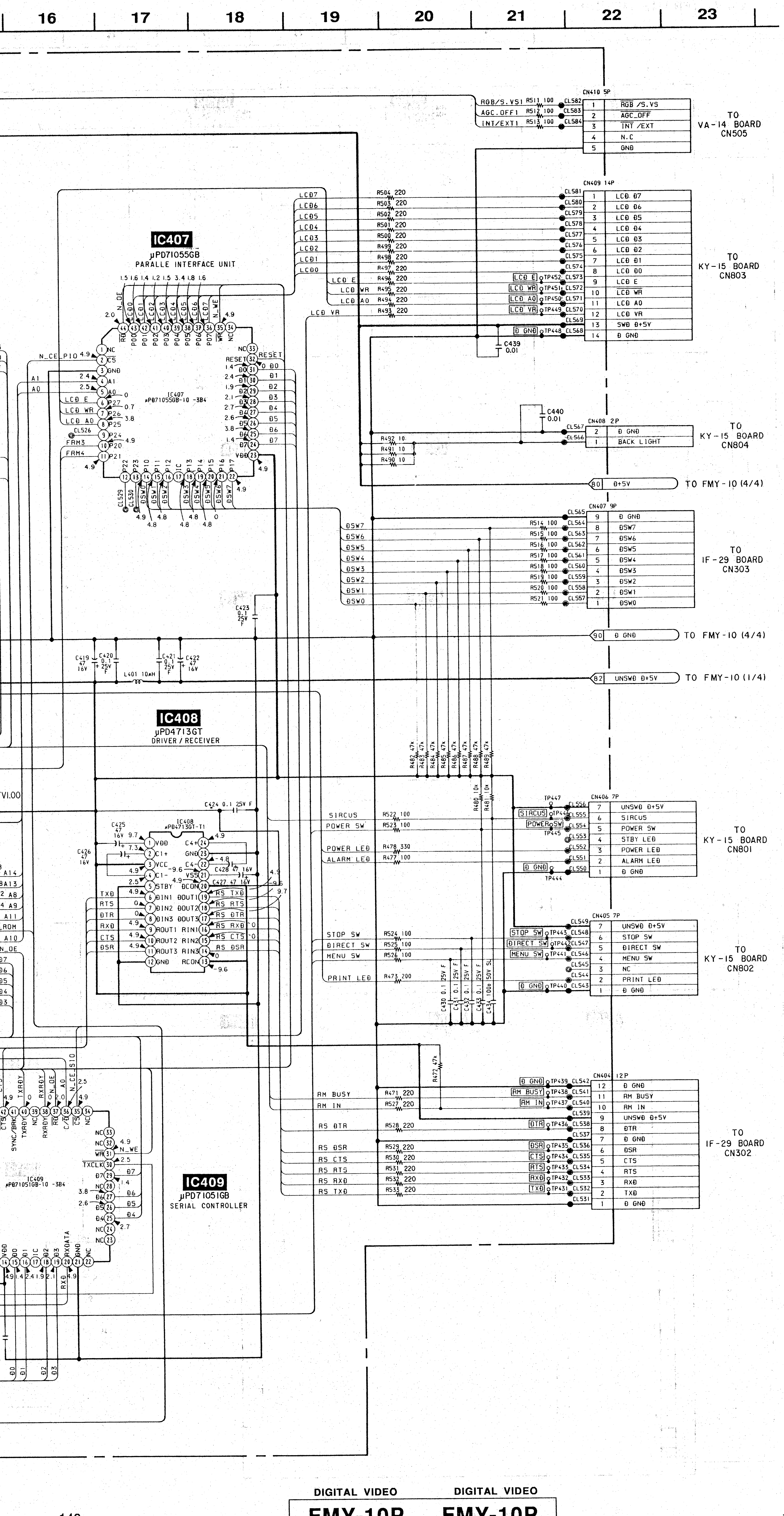

19
20
21
22
TO FMY-10 (1/4)
TO FMY-10 (4/4)
WRP
TO FMY-10 (3/4)
D+5V
IC405 (4/4) 74F86
IC605 (3/4) 74F86
CC217
CL236
CAS7M
IC214 (2/4) 74F08
DL200 DS-1000-50
IC214 (1/4) 74F08
CL234
C243 0.1μ
IC219 CXD8391Q
CK
WR
HLDREQ
HLDACK
CC216
CL235
D0
D1
D2
D3
D4
D5
D6
D7
A0
A1
A2
A3
A4
A5
A6
A7
A8
A9
A10
A11
A12
A13
A14
A15
CS2
CS0
CS1
A16
A17
A18
A19
A20
A21
A22
A23
MEMO BUSR/W
B.COL.R
B.COL.G
B.COL.B
MIN
ABRQ
DBRQ
L0
L1
L2
L3
L4
L5
L6
L7
L8
BP.WR
P.WR
WRP
HDLSET9
DRQ2
HDLSET1
HDLSET2
HDLSET3
HDLSET4
HDLSET5
RES
HDLSET6
HDLSET7
WRC
HDLSET8
MMUCAS
MMURAS
MMUR/C
IN/MEMO
FULL/SPRIT
SP4/SP16
VDD
GND
CC218
CL237
HOLADJ1
HOLADJ2
HOLADJ3
HOLADJ4
HOLADJ5
HOLADJ6
HOLADJ7
HOLADJ8
HOLADJ9
MEMOHOL
W1
C246 0.1μ
C245 0.1
C240 0.1μ
20MHz
R242 1M
C241 0.1μ
R239 1k
IC219
CXD8391Q
GATE ARRAY
C242 0.1μ
C244 47 16V
CAPEN
TO FMY-10 (1/4)
TO FMY-10 (3/4)
TO FMY-10 (3/4)
TO FMY-10 (3/4)
TO FMY-10 (4/4)


❶
H
CC008 ---- 1.85Vp-p
CC038 ---- 0.95Vp-p
❷
H
CC039 ---- 1Vp-p
CC010 ---- 1.85Vp-p
❸
H
CC011 ---- 1.85Vp-p
CC037 ---- 0.95Vp-p
❹
4.6Vp-p
CC200, 201
❺
H
CC205 ---- 5Vp-p
TP412 ---- 4.6Vp-p
❻
5.2Vp-p
V
CC207
❼
4.2Vp-p
H
CC206
❽
5Vp-p
H
CC211
❾
5.2Vp-p
V
CC214
❿
IC404 99PIN --- 4.1Vp-p 32.768KHz
IC404 3PIN ---- 1.3Vp-p 10MHz
⓫
0.1Vp-p
19.66MHz
IC410 2PIN
⓬
5Vp-p
H
TP410, 419
⓭
2.4Vp-p
68Nsec
TP413

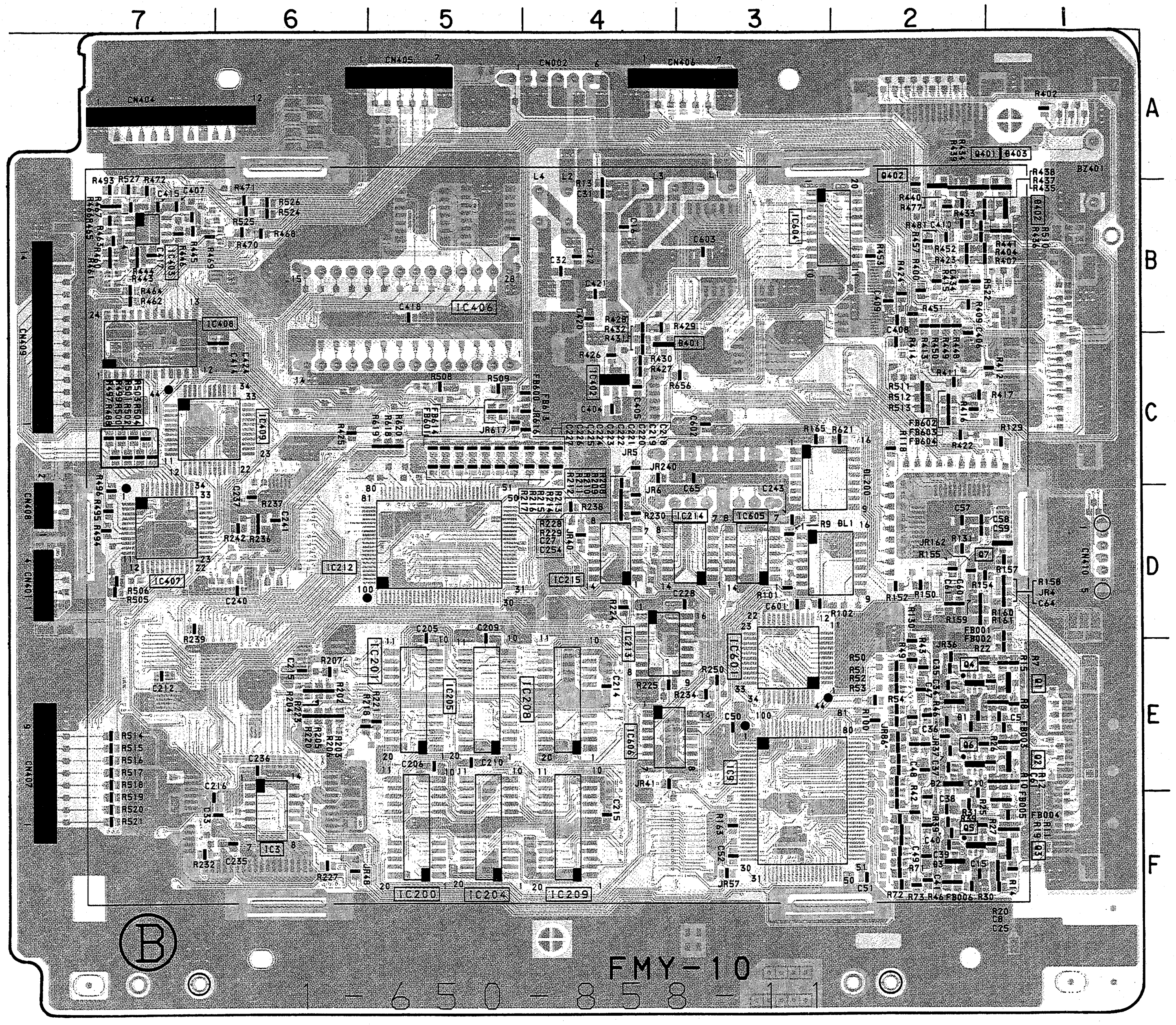
FMY-10P — 3/4 — (FRAME MEMORY)


1
2
3
4
5
6
7
8
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
FMY-10 BOARD (3/4)
TO IF-28 BOARD CN003
CN401 4P
SWD 0+5V
THRU
NC
0 GND
C438 0.01
R401 100
TO HM-22 BOARD CN706
CN402 7P
MECH CS
SCK
SI
SO
RESET
R402 220
R403 220
TO VA-14 BOARD CN102
CN403 26P
EE RESET1
RESET
SYNC SEL
POWER ON
SYNC DET
LANC
TXD1
RXD1
SCK1
EV CS
CG CS
EE CS
TXD0
EE BUSY
SCK0
VBS
VD
HD
910FH
SOG
R507 0
R537 0
R536 0
R535 0
R534 0
5
13
TO FMY-10 (2/4)
TO FMY-10 (1/4)
MC BUSY
XTAN OK
N_RESET
IC403
AK6420F
ERASABLE MEMORY
Q401
LANC OUT SWITCH
Q402
LANC IN SWITCH
IC402
S-8054ALB
RESET
IC413
SN74HC04ANS
INVERTER
IC414
SN74HC138ANS
DECODER
HALF
POWER ON
MUTE D/A
RESET
FRM3
FRM4
N_CE_SIO
N_CE_PIO
N_CE_ROM
IC411 (1/2) 7420
IC411 (2/2) 7420
JR507 0
UP-1850EPM only

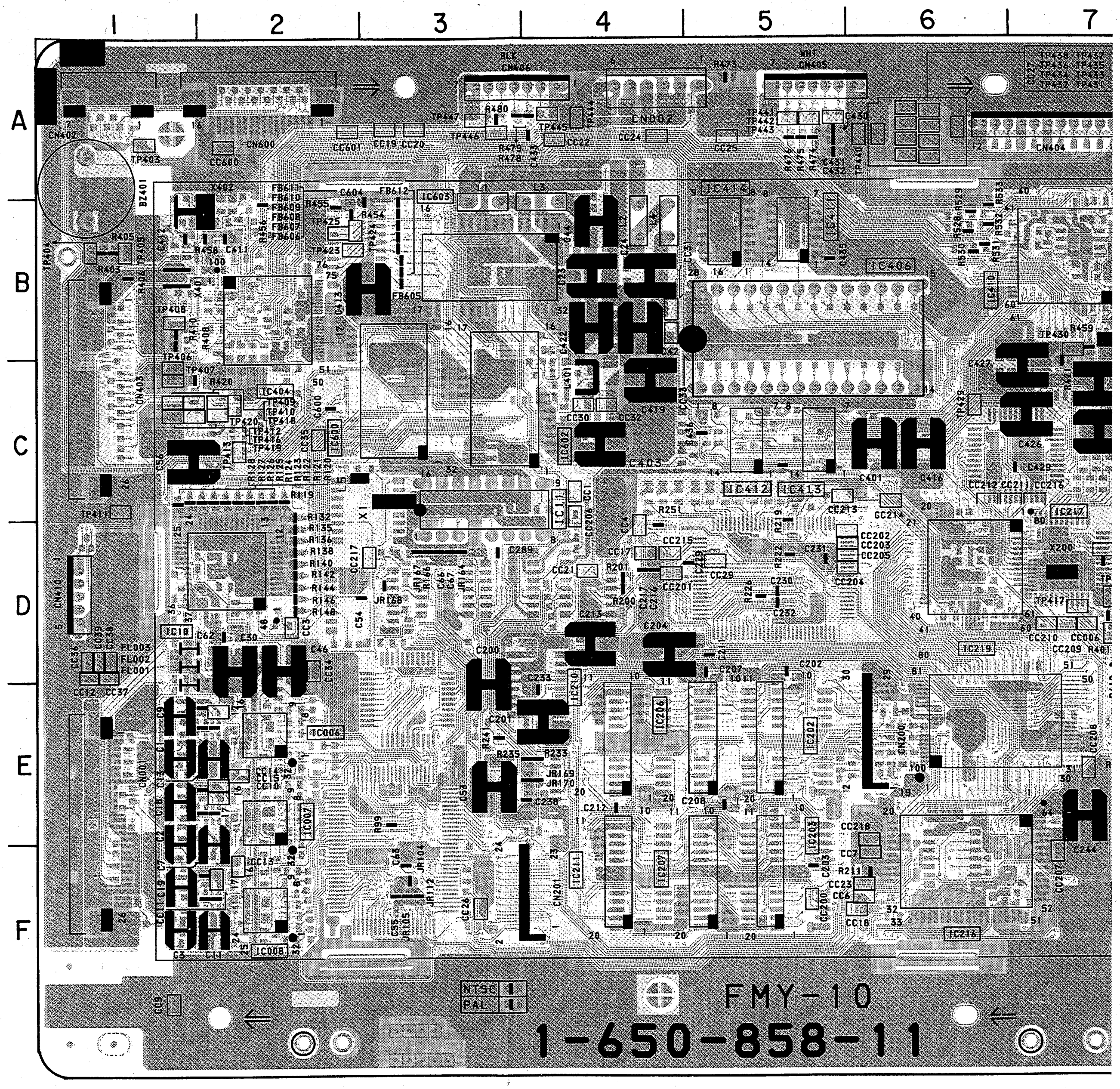

7
8
9
10
11
12
13
14
15
16
17
18
IC404
MB89092PFV
SYSTEM CONTROL
IC403
AK6420F
ERASABLE MEMORY
IC407
µPD71055GB
PARALLE INTERFACE UNIT
IC408
µPD4713GT
DRIVER / RECEIVER
IC406
M27C512-UP18PSYV1.00
RAM
IC402
S-8054ALB
RESET
IC412
SN74HC32ANS
OR
IC411
SN74HC32ANS
OR
IC410
HD6413378F10
8-BIT 1CHIP CPU
IC409
µPD71051GB
SERIAL CONTROLLER
Q401
LANC OUT SWITCH
Q402
LANC IN SWITCH
⑩
⑪
⑫
X401 10.00MHz
X402 32.768KHz
X403 19.66MHz
POWER LED
ALARM LED
PRINT LED
MECH CS
EE CS1
EV CS
DICC CS
SOG
POWER ON
INT/EXT1
AGC.OFF1
RGB/S.VS1
VBS
THRU
HALF
MD CS
EE BUSY1
SYNC DET
SIRCUS
POWER SW
STOP SW
DIRECT SW
MENU SW
LCD VR
MC BUSY
MD BUSY
EE BUSY0
XTRN OK
N_CE_ROM
N_RESET


16
17
18
19
20
21
22
23
IC407
μPD71055GB
PARALLE INTERFACE UNIT
IC408
μPD4713GT
DRIVER / RECEIVER
IC409
μPD71051GB
SERIAL CONTROLLER
CN410 5P
RGB /S.VS
AGC_OFF
INT /EXT
N.C
GND
TO VA-14 BOARD CN505
CN409 14P
LCD D7
LCD D6
LCD D5
LCD D4
LCD D3
LCD D2
LCD D1
LCD D0
LCD E
LCD WR
LCD A0
LCD VR
SWD D+5V
D GND
TO KY-15 BOARD CN803
C439 0.01
C440 0.01
CN408 2P
D GND
BACK LIGHT
TO KY-15 BOARD CN804
D+5V
TO FMY-10 (4/4)
CN407 9P
D GND
DSW7
DSW6
DSW5
DSW4
DSW3
DSW2
DSW1
DSW0
TO IF-29 BOARD CN303
D GND
TO FMY-10 (4/4)
UNSWD D+5V
TO FMY-10 (1/4)
CN406 7P
UNSWD D+5V
SIRCUS
POWER SW
STBY LED
POWER LED
ALARM LED
D GND
TO KY-15 BOARD CN801
CN405 7P
UNSWD D+5V
STOP SW
DIRECT SW
MENU SW
NC
PRINT LED
D GND
TO KY-15 BOARD CN802
CN404 12P
D GND
RM BUSY
RM IN
UNSWD D+5V
DTR
D GND
DSR
CTS
RTS
RXD
TXD
D GND
TO IF-29 BOARD CN302
L401 10μH
C423 0.1 25V F
C424 0.1 25V F
C419 47 16V
C420 0.1 25V F
C421 0.1 25V F
C422 47 16V
C425 47 16V
C426 47 16V
C427 47 16V
C428 47 16V
C430 0.1 25V F
C431 0.1 25V F
C432 0.1 25V F
C433 0.1 25V F
C434 100μ 50V SL
R482 47k
R483 47k
R484 47k
R485 47k
R486 47k
R487 47k
R488 47k
R489 47k
R480 10k
R481 10k
R472 47k
N_CE_PIO
FRM3
FRM4
TXD
RTS
DTR
RXD
CTS
DSR
RS TXD
RS RTS
RS DTR
RS RXD
RS CTS
RS DSR
TXCLK
N_WE
N_CE_SIO
VDD
VCC
VSS
GND
RESET

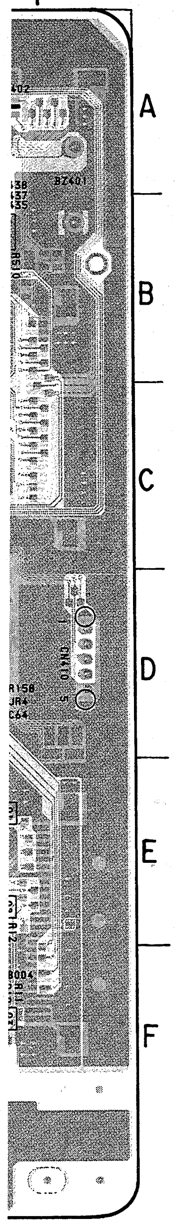
FMY-10P (FRAME MEMORY)


7
6
5
4
3
2
1
A
B
C
D
E
F
FMY-10
1-650-858-11

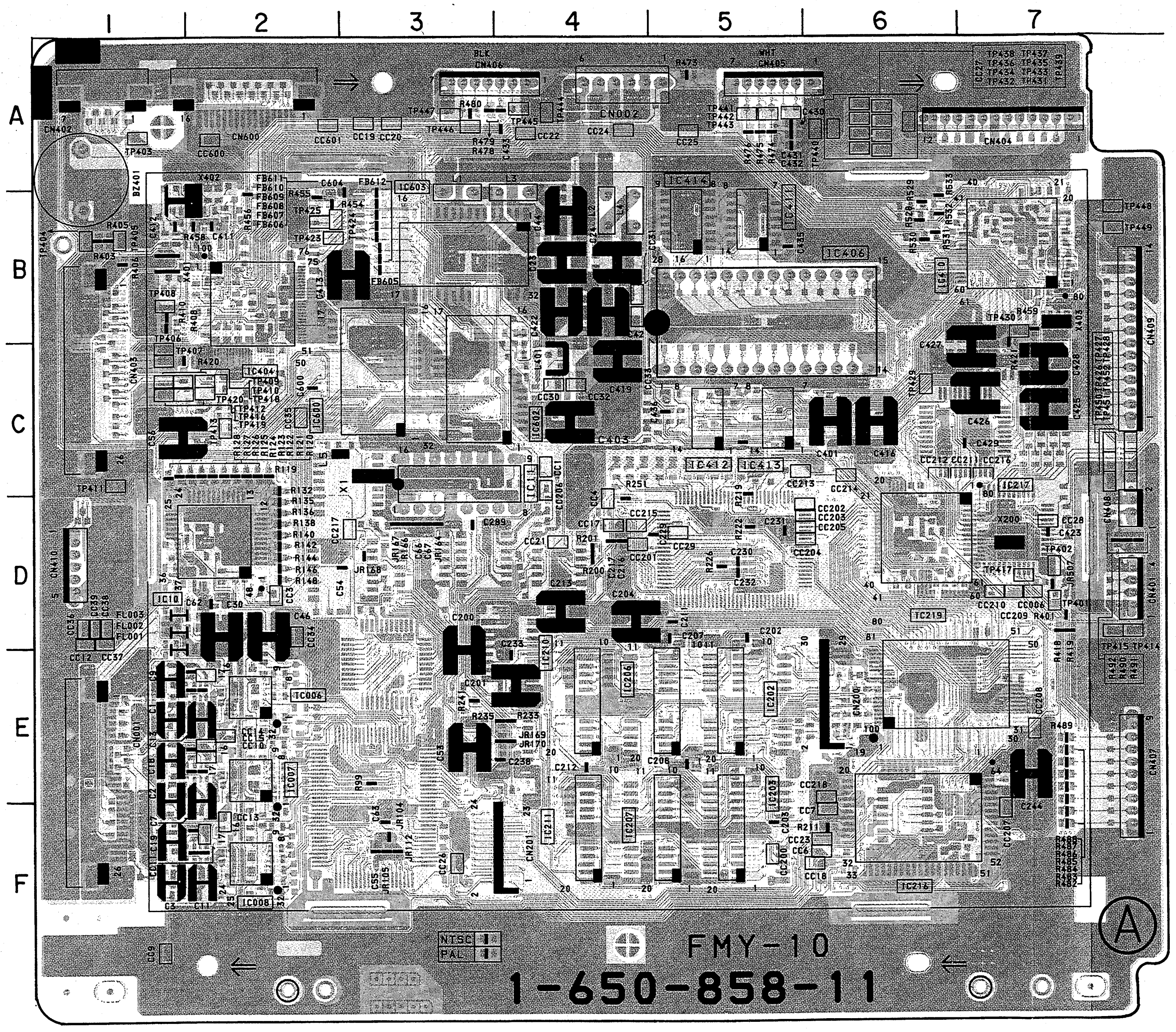
FMY-10 -SOLDERING SIDE-


1
2
3
4
5
6
7
A
B
C
D
E
F
NTSC
PAL
FMY-10
1-650-858-11

FMY-10 -COMPON


A
B
C
D
E
F
BZ401
CN410

ERING SIDE-


1
2
3
4
5
6
7
A
B
C
D
E
F
CN402
CN406
CN002
CN405
CN404
CN403
CN410
CN409
CN408
CN401
CN407
BZ401
IC414
IC406
IC412
IC413
IC600
IC603
IC404
IC411
IC202
IC206
IC207
IC208
IC216
IC219
IC217
IC006
IC007
IC008
IC010
X200
NTSC
PAL
FMY-10
1-650-858-11
A

FMY-10 -COMPONENT SIDE-

FMY-10P BOARD

BZ401	A-1	
CN001	E-1	
CN002	A-4	
CN401	D-7	
CN402	A-1	
CN403	C-1	
CN404	A-7	
CN405	A-5	
CN406	A-3	
CN407	E-7	
CN408	D-7	
CN409	C-7	
CN410	D-1	
CN600	A-6	
D001	E-2	S
D002	E-2	S
D003	F-2	S
D401	C-4	S
D402	B-1	S
D403	B-1	S
DL001	D-3	S
DL200	C-3	S
FB001	D-1	S
FB002	E-1	S
FB003	E-1	S
FB004	F-1	S
FB005	F-1	S
FB006	F-2	S
FB600	C-4	S
FB601	C-5	S
FB602	C-2	S
FB603	C-2	S
FB604	C-2	S
FB605	B-3	
FB606	B-3	
FB607	B-3	
FB608	B-3	
FB609	B-3	
FB610	B-3	
FB611	B-3	
FB612	B-3	
FB613	C-4	S
FB614	C-5	S
FL001	D-1	
FL002	D-1	
FL003	D-1	
IC003	F-6	S
IC006	E-2	
IC007	E-2	
IC008	F-2	
IC009	F-3	S
IC010	D-2	
IC200	F-5	S
IC201	E-5	S
IC204	F-5	S
IC205	E-5	S
IC208	E-4	S
IC209	F-4	S
IC212	D-5	S
IC213	E-4	S
IC214	D-3	S
IC215	D-4	S
IC216	F-6	
IC217	D-6	
IC219	E-6	
IC402	C-4	S
IC403	B-7	S
IC404	B-2	
IC406	B-5	
IC407	D-7	S
IC408	C-7	S
IC409	C-7	S
IC410	B-7	
IC411	B-5	
IC412	C-5	
IC413	C-5	
IC414	B-5	
IC600	C-3	
IC601	E-3	S
IC602	C-3	
IC603	B-3	
IC604	B-2	S
IC605	D-3	S
IC606	E-4	S
JR004	D-1	S
JR005	C-4	S
JR036	E-2	S
JR037	E-2	S
JR039	F-2	S
JR040	D-4	S
JR048	F-6	S
JR104	F-3	
JR105	F-3	
JR162	D-2	S
JR168	D-3	
JR170	E-4	
L001	B-3	
L002	B-4	
L003	B-4	
L004	B-4	
Q001	E-1	S
Q002	E-1	S
Q003	F-1	S
Q004	E-2	S
Q005	F-2	S
Q006	E-2	S
Q007	D-1	S
Q401	B-2	S
Q402	B-2	S
X200	D-7	
X401	B-1	
X402	B-2	
X403	B-7	

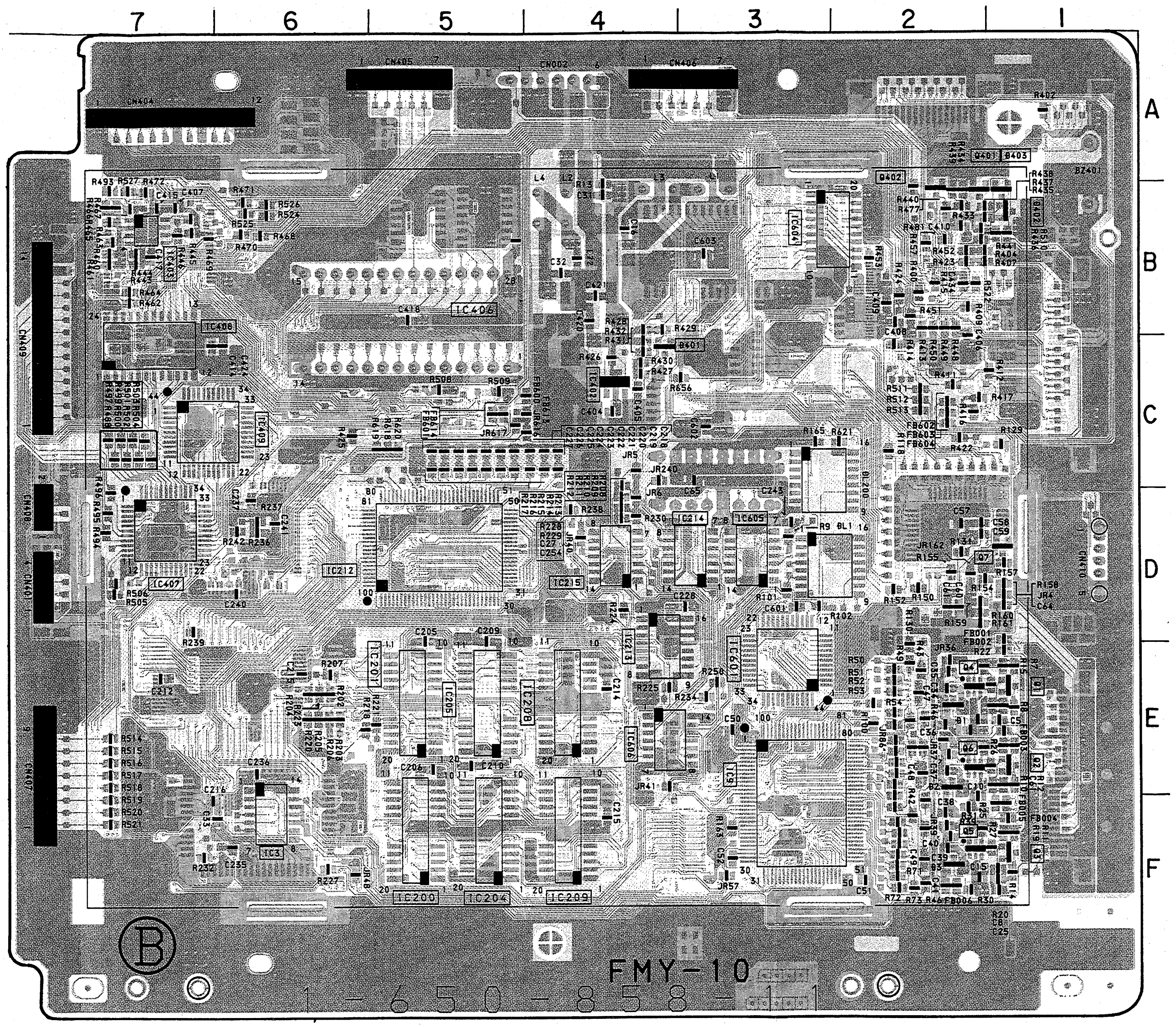
S:SOLDERING SIDE

FMY-10P (FRAME MEMORY)

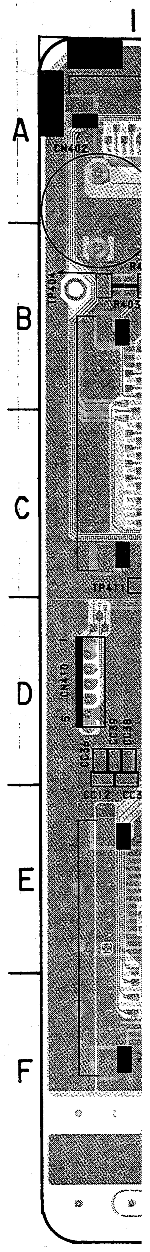
FMY-10P BOARD

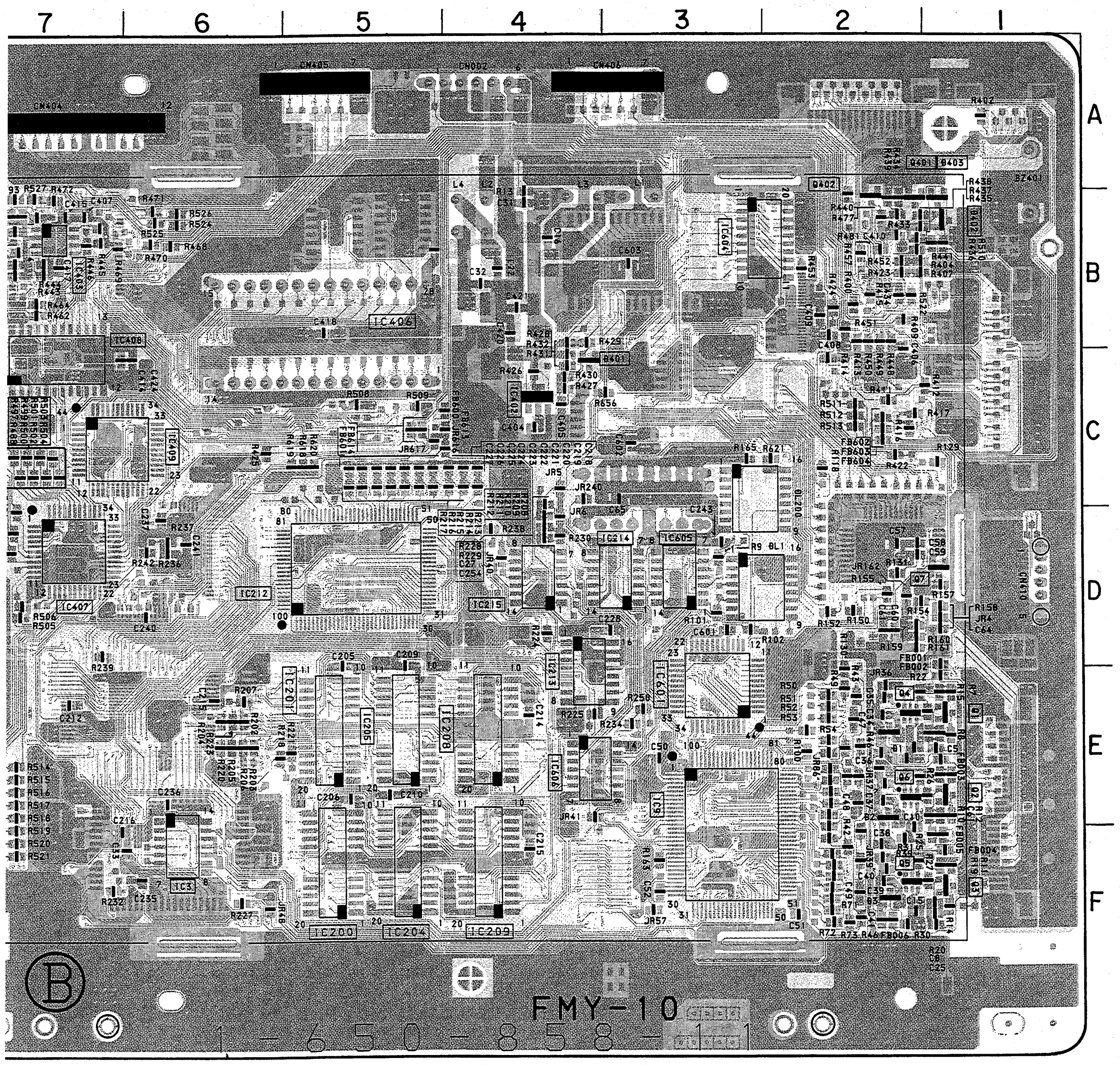
BZ401	A-1	
CN001	E-1	
CN002	A-4	
CN401	D-7	
CN402	A-1	
CN403	C-1	
CN404	A-7	
CN405	A-5	
CN406	A-3	
CN407	E-7	
CN408	D-7	
CN409	C-7	
CN410	D-1	
CN600	A-6	
D001	E-2	S
D002	E-2	S
D003	F-2	S
D401	C-4	S
D402	B-1	S
D403	B-1	S
DL001	D-3	S
DL200	C-3	S
FB001	D-1	S
FB002	E-1	S
FB003	E-1	S
FB004	F-1	S
FB005	F-1	S
FB006	F-2	S
FB600	C-4	S
FB601	C-5	S
FB602	C-2	S
FB603	C-2	S
FB604	C-2	S
FB605	B-3	
FB606	B-3	
FB607	B-3	
FB608	B-3	
FB609	B-3	
FB610	B-3	
FB611	B-3	
FB612	B-3	
FB613	C-4	S
FB614	C-5	S
FL001	D-1	
FL002	D-1	
FL003	D-1	
IC003	F-6	S
IC006	E-2	
IC007	E-2	
IC008	F-2	
IC009	F-3	S
IC010	D-2	
IC200	F-5	S
IC201	E-5	S
IC204	F-5	S
IC205	E-5	S
IC208	E-4	S
IC209	F-4	S
IC212	D-5	S
IC213	E-4	S
IC214	D-3	S
IC215	D-4	S
IC216	F-6	
IC217	D-6	
IC219	E-6	
IC402	C-4	S
IC403	B-7	S
IC404	B-2	
IC406	B-5	
IC407	D-7	S
IC408	C-7	S
IC409	C-7	S
IC410	B-7	
IC411	B-5	
IC412	C-5	
IC413	C-5	
IC414	B-5	
IC600	C-3	
IC601	E-3	S
IC602	C-3	
IC603	B-3	
IC604	B-2	S
IC605	D-3	S
IC606	E-4	S
JR004	D-1	S
JR005	C-4	S
JR036	E-2	S
JR037	E-2	S
JR039	F-2	S
JR040	D-4	S
JR048	F-6	S
JR104	F-3	
JR105	F-3	
JR162	D-2	S
JR168	D-3	
JR170	E-4	
L001	B-3	
L002	B-4	
L003	B-4	
L004	B-4	
Q001	E-1	S
Q002	E-1	S
Q003	F-1	S
Q004	E-2	S
Q005	F-2	S
Q006	E-2	S
Q007	D-1	S
Q401	B-2	S
Q402	B-2	S
X200	D-7	
X401	B-1	
X402	B-2	
X403	B-7	

S:SOLDERING SIDE

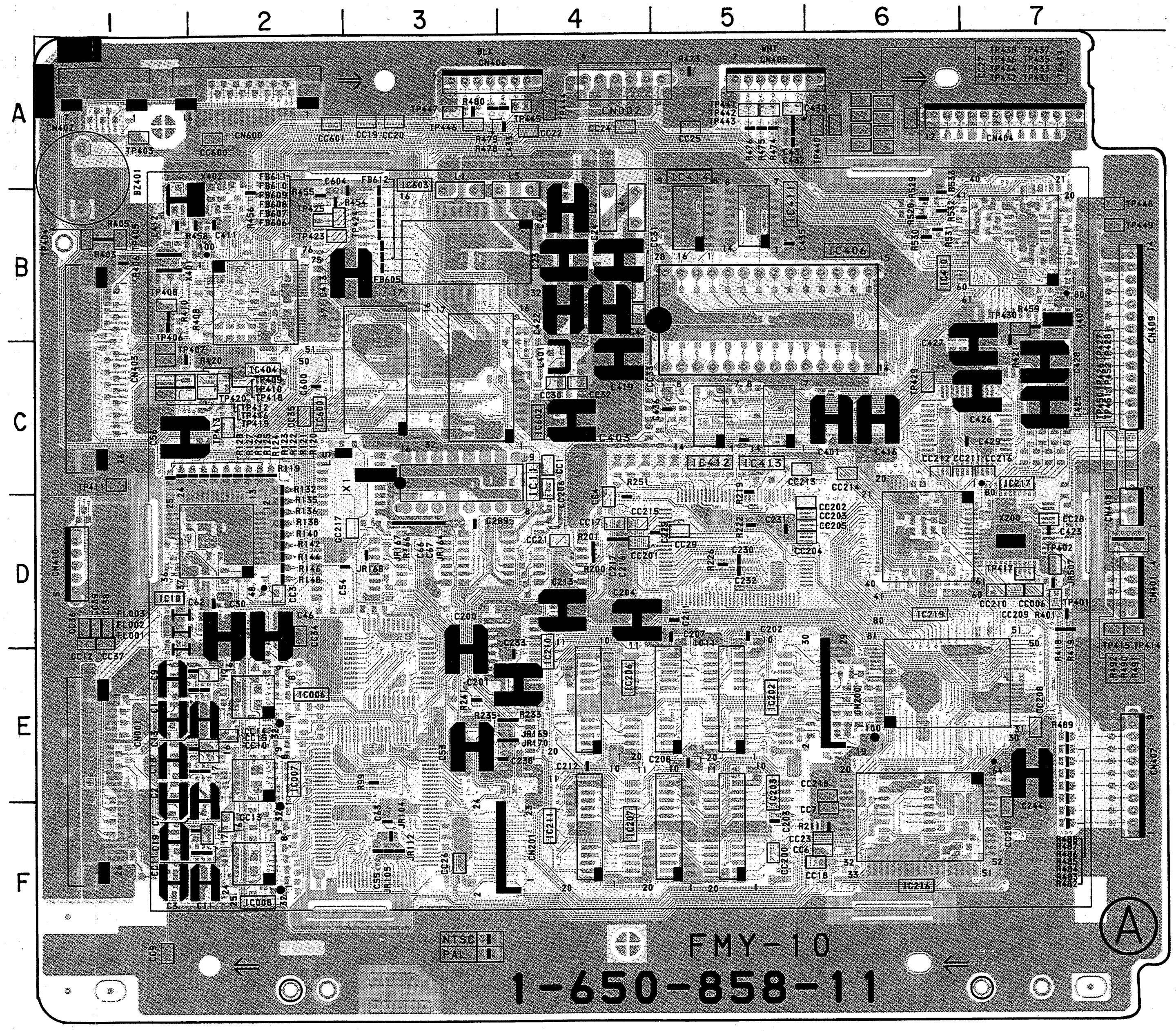


FMY-10 -SOLDERING SIDE-



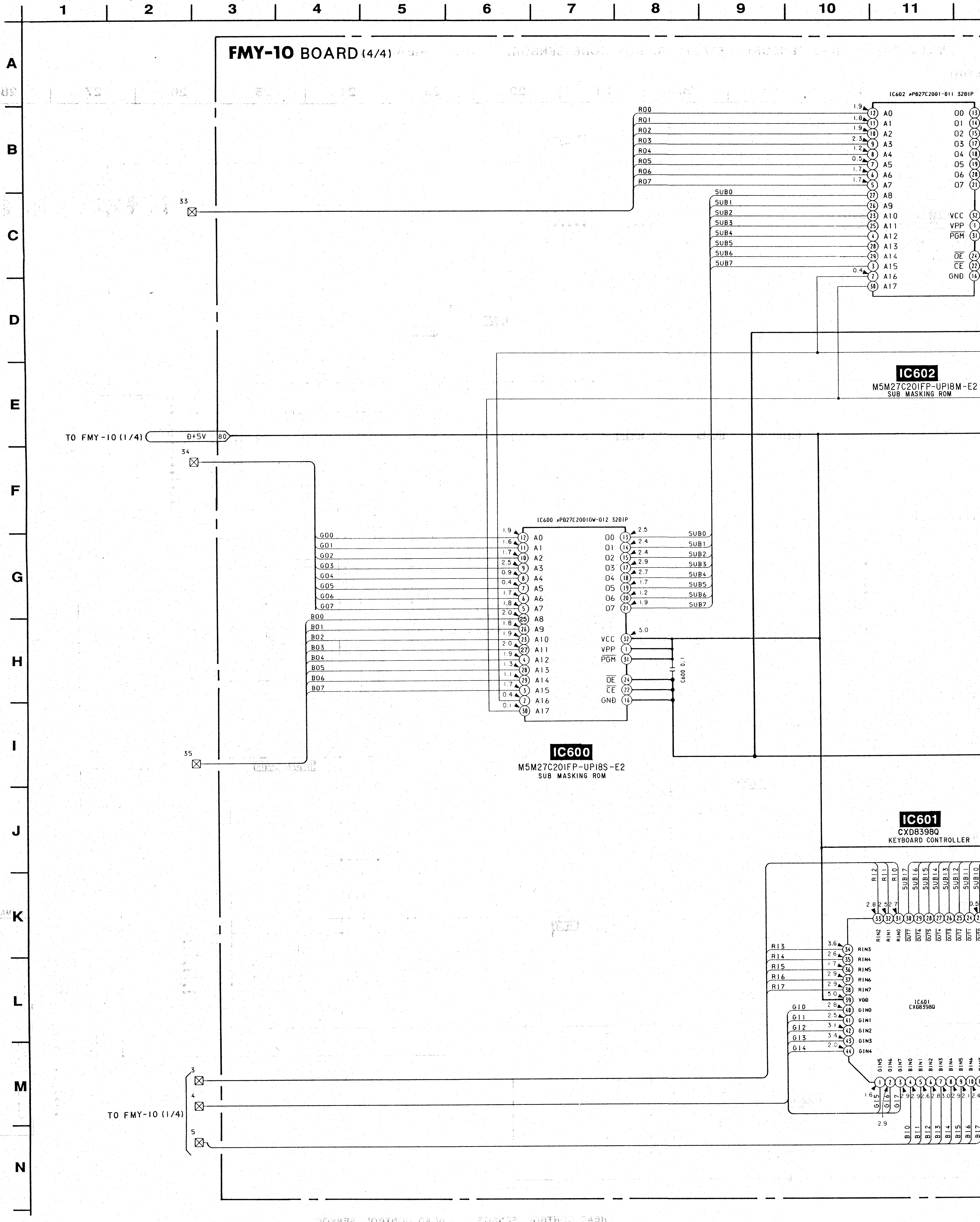

7
6
5
4
3
2
1
A
B
C
D
E
F
B
FMY-10
1-650-858-11

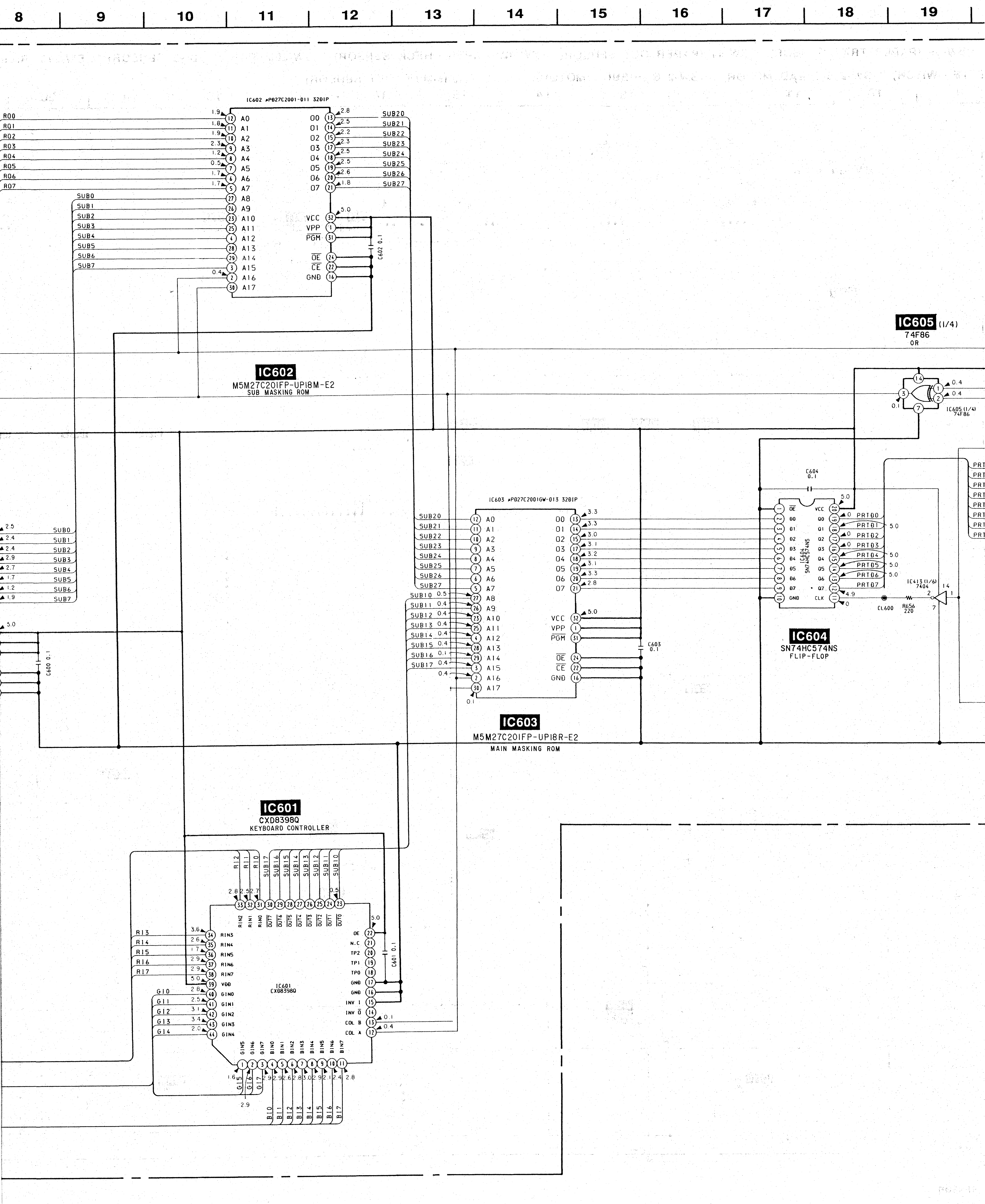
FMY-10 -SOLDERING SIDE-


1
2
3
4
5
6
7
A
B
C
D
E
F
A
NTSC
PAL
FMY-10
1-650-858-11

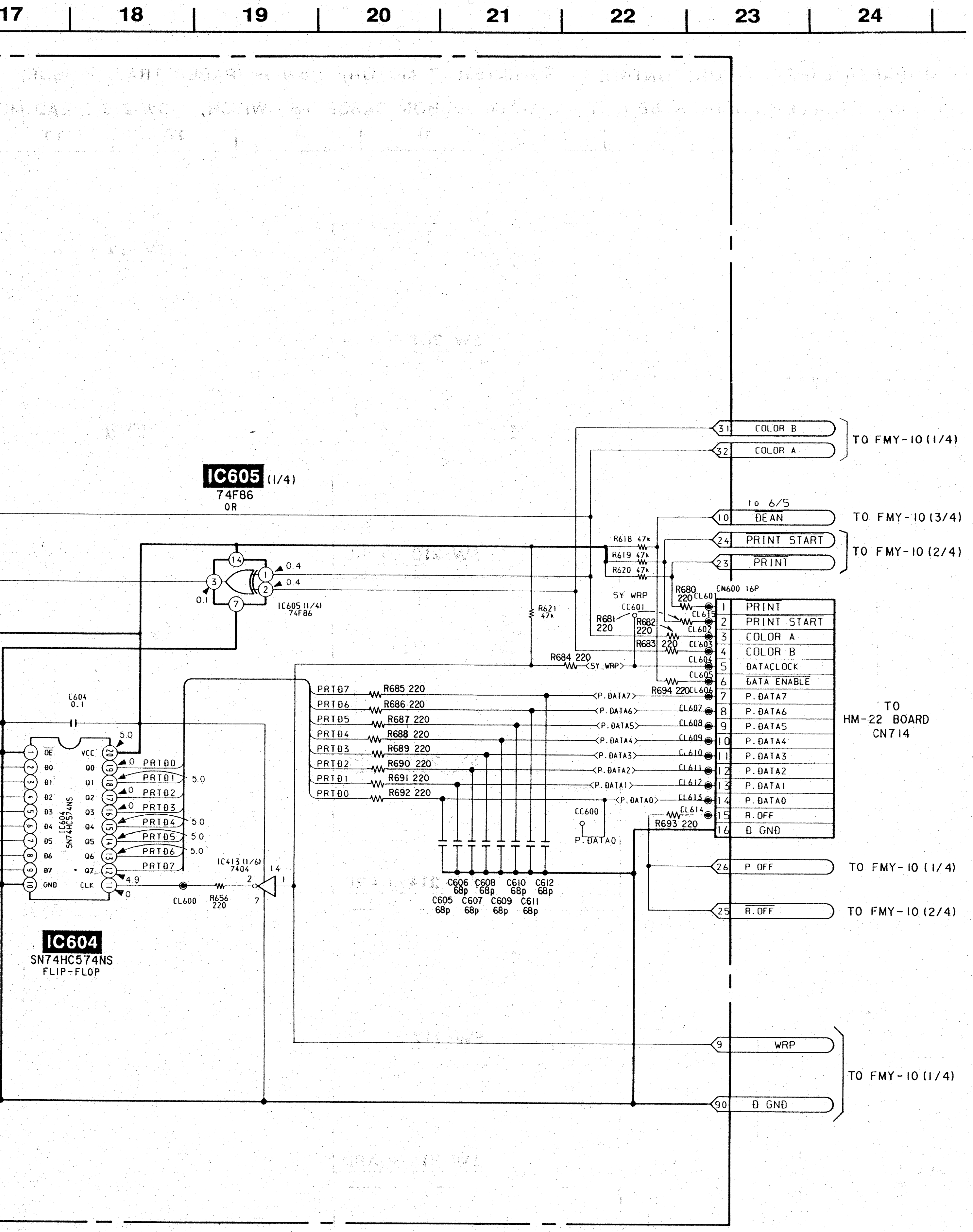
FMY-10 -COMPONENT SIDE-

FMY-10P — 4/4 — (FRAME MEMORY)


1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
I
J
K
L
M
N
FMY-10 BOARD (4/4)
IC602 μPD27C2001-011 3201P
R00
R01
R02
R03
R04
R05
R06
R07
SUB0
SUB1
SUB2
SUB3
SUB4
SUB5
SUB6
SUB7
A0
A1
A2
A3
A4
A5
A6
A7
A8
A9
A10
A11
A12
A13
A14
A15
A16
A17
00
01
02
03
04
05
06
07
VCC
VPP
PGM
OE
CE
GND
33
IC602
M5M27C201FP-UP18M-E2
SUB MASKING ROM
TO FMY-10 (1/4)
D+5V
80
34
IC600 μPD27C2001GW-012 3201P
G00
G01
G02
G03
G04
G05
G06
G07
B00
B01
B02
B03
B04
B05
B06
B07
C600 0.1
35
IC600
M5M27C201FP-UP18S-E2
SUB MASKING ROM
IC601
CXD8398Q
KEYBOARD CONTROLLER
R12
R11
R10
SUB17
SUB16
SUB15
SUB14
SUB13
SUB12
SUB11
SUB10
R13
R14
R15
R16
R17
RIN3
RIN4
RIN5
RIN6
RIN7
VDD
GIN0
GIN1
GIN2
GIN3
GIN4
G10
G11
G12
G13
G14
IC601
CXD8398Q
GIN5
GIN6
GIN7
BIN0
BIN1
BIN2
BIN3
BIN4
BIN5
BIN6
G15
G16
G17
B10
B11
B12
B13
B14
B15
B16
B17
3
4
5
TO FMY-10 (1/4)

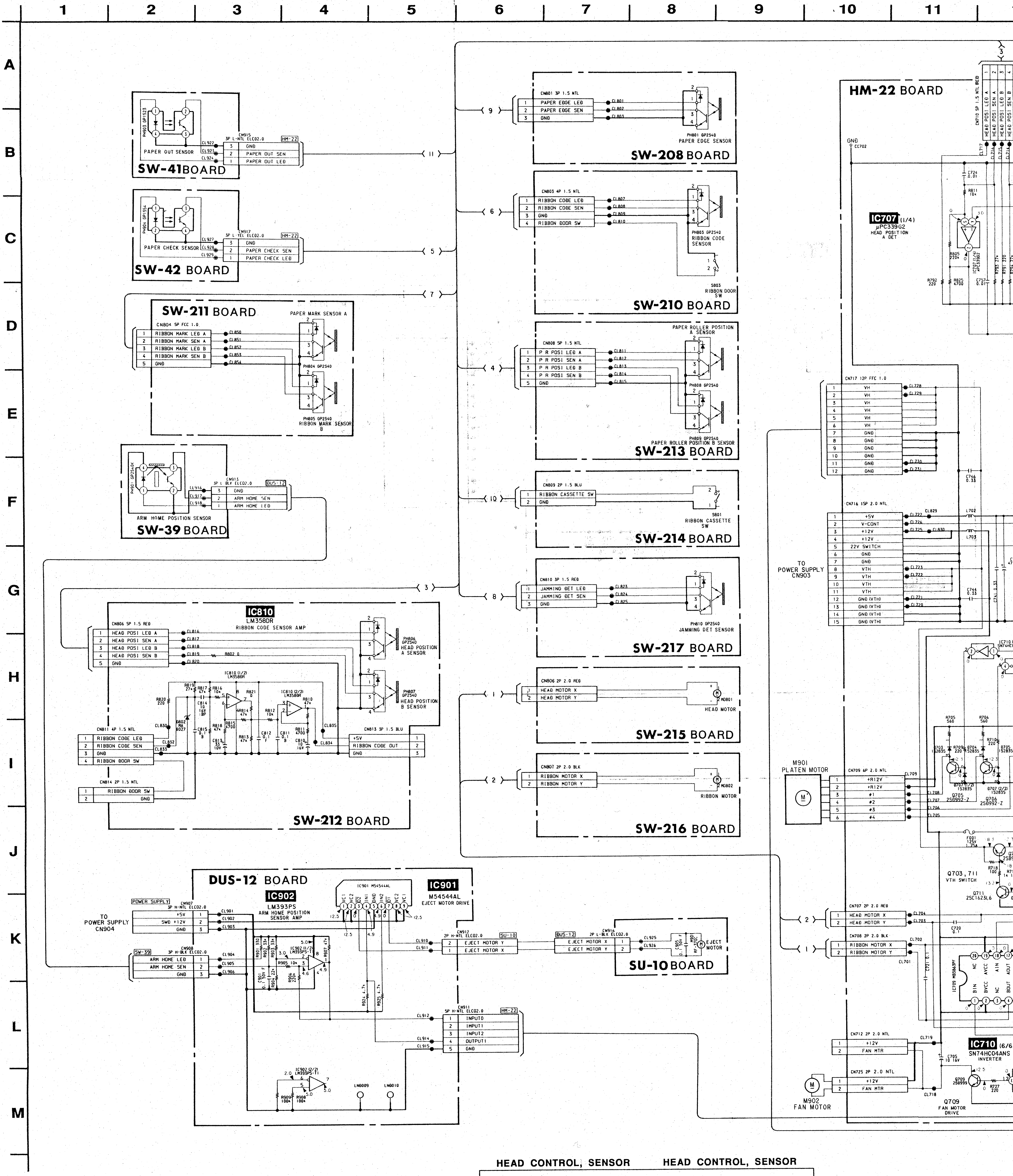


8
9
10
11
12
13
14
15
16
17
18
19
IC602 μPD27C2001-011 32DIP
R00
R01
R02
R03
R04
R05
R06
R07
SUB0
SUB1
SUB2
SUB3
SUB4
SUB5
SUB6
SUB7
A0
A1
A2
A3
A4
A5
A6
A7
A8
A9
A10
A11
A12
A13
A14
A15
A16
A17
O0
O1
O2
O3
O4
O5
O6
O7
VCC
VPP
PGM
OE
CE
GND
SUB20
SUB21
SUB22
SUB23
SUB24
SUB25
SUB26
SUB27
C602 0.1
IC602
M5M27C201FP-UPI8M-E2
SUB MASKING ROM
IC605 (1/4)
74F86
OR
IC605 (1/4) 74F86
C604 0.1
IC603 μPD27C2001GW-013 32DIP
SUB10
SUB11
SUB12
SUB13
SUB14
SUB15
SUB16
SUB17
C603 0.1
IC603
M5M27C201FP-UPI8R-E2
MAIN MASKING ROM
IC604 SN74HC574NS
PRTD0
PRTD1
PRTD2
PRTD3
PRTD4
PRTD5
PRTD6
PRTD7
CLK
IC413 (1/6) 7404
CL600
R656 220
IC604
SN74HC574NS
FLIP-FLOP
PRT
C600 0.1
IC601
CXD8398Q
KEYBOARD CONTROLLER
R12
R11
R10
RIN2
RIN1
RIN0
OUT7
OUT6
OUT5
OUT4
OUT3
OUT2
OUT1
OUT0
R13
R14
R15
R16
R17
RIN3
RIN4
RIN5
RIN6
RIN7
VDD
GIN0
GIN1
GIN2
GIN3
GIN4
G10
G11
G12
G13
G14
IC601 CXD8398Q
OE
N.C
TP2
TP1
TP0
GND
INV 1
INV 0
COL B
COL A
C601 0.1
GIN5
GIN6
GIN7
BIN0
BIN1
BIN2
BIN3
BIN4
BIN5
BIN6
BIN7
G15
G16
G17
BI0
BI1
BI2
BI3
BI4
BI5
BI6
BI7


17
18
19
20
21
22
23
24
IC605 (1/4)
74F86
OR
IC605 (1/4) 74F86
0.4
0.4
0.1
IC604
SN74HC574NS
FLIP-FLOP
C604 0.1
5.0
OE
VCC
D0
Q0
D1
Q1
D2
Q2
D3
Q3
D4
Q4
D5
Q5
D6
Q6
D7
Q7
GND
CLK
PRTD0
PRTD1
PRTD2
PRTD3
PRTD4
PRTD5
PRTD6
PRTD7
4.9
IC413 (1/6) 7404
CL600
R656 220
R618 47k
R619 47k
R620 47k
R621 47k
SY WRP
CC601
R680 220
R681 220
R682 220
R683 220
R684 220
R685 220
R686 220
R687 220
R688 220
R689 220
R690 220
R691 220
R692 220
R693 220
R694 220
SY_WRP
P.DATA7
P.DATA6
P.DATA5
P.DATA4
P.DATA3
P.DATA2
P.DATA1
P.DATA0
CC600
C605 68p
C606 68p
C607 68p
C608 68p
C609 68p
C610 68p
C611 68p
C612 68p
CN600 16P
CL601
CL602
CL603
CL604
CL605
CL606
CL607
CL608
CL609
CL610
CL611
CL612
CL613
CL614
CL615
1 PRINT
2 PRINT START
3 COLOR A
4 COLOR B
5 DATACLOCK
6 DATA ENABLE
7 P.DATA7
8 P.DATA6
9 P.DATA5
10 P.DATA4
11 P.DATA3
12 P.DATA2
13 P.DATA1
14 P.DATA0
15 R.OFF
16 D GND
TO HM-22 BOARD CN714
31 COLOR B
32 COLOR A
TO FMY-10 (1/4)
to 6/5
10 DEAN
TO FMY-10 (3/4)
24 PRINT START
23 PRINT
TO FMY-10 (2/4)
26 P OFF
TO FMY-10 (1/4)
25 R.OFF
TO FMY-10 (2/4)
9 WRP
90 D GND
TO FMY-10 (1/4)

HM-22P (THERMAL HEAD CONTROL) DUS-12 (PAPER EJECT MOTOR CONTROL) SU-10 (EJECT MOTOR) SW-39 (PAPER TRAY SENSOR) SW-4

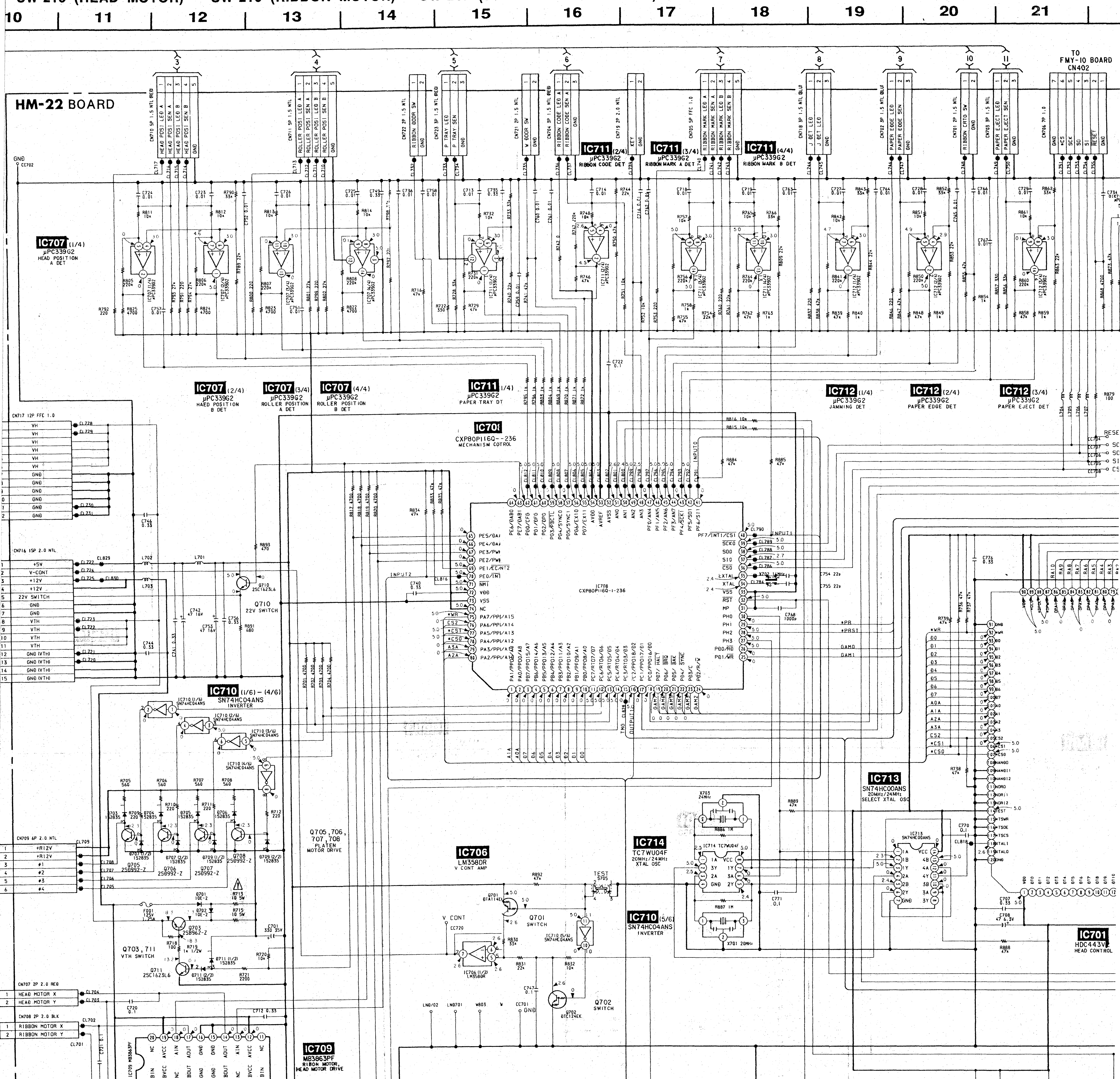
SW-212 (HEAD POSITION SENSOR) SW-213 (PAPER ROLLER POSITION SENSOR) SW-214 (RIBBON CASSETTE SWITCH) SW-215 (HEAD MOTOR)


1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
I
J
K
L
M
SW-41 BOARD
PAPER OUT SENSOR
PAPER OUT SEN
PAPER OUT LED
SW-42 BOARD
PAPER CHECK SENSOR
PAPER CHECK SEN
PAPER CHECK LED
SW-211 BOARD
PAPER MARK SENSOR A
RIBBON MARK LED A
RIBBON MARK SEN A
RIBBON MARK LED B
RIBBON MARK SEN B
RIBBON MARK SENSOR B
SW-39 BOARD
ARM HOME POSITION SENSOR
ARM HOME SEN
ARM HOME LED
IC810
LM358DR
RIBBON CODE SENSOR AMP
HEAD POSI LED A
HEAD POSI SEN A
HEAD POSI LED B
HEAD POSI SEN B
HEAD POSITION A SENSOR
HEAD POSITION B SENSOR
RIBBON CODE LED
RIBBON CODE SEN
RIBBON DOOR SW
RIBBON CODE OUT
SW-212 BOARD
SW-208 BOARD
PAPER EDGE LED
PAPER EDGE SEN
PAPER EDGE SENSOR
SW-210 BOARD
RIBBON CODE SENSOR
RIBBON DOOR SW
SW-213 BOARD
P R POSI LED A
P R POSI SEN A
P R POSI LED B
P R POSI SEN B
PAPER ROLLER POSITION A SENSOR
PAPER ROLLER POSITION B SENSOR
SW-214 BOARD
RIBBON CASSETTE SW
SW-217 BOARD
JAMMING DET LED
JAMMING DET SEN
JAMMING DET SENSOR
SW-215 BOARD
HEAD MOTOR X
HEAD MOTOR Y
HEAD MOTOR
SW-216 BOARD
RIBBON MOTOR X
RIBBON MOTOR Y
RIBBON MOTOR
DUS-12 BOARD
IC902
LM393PS
ARM HOME POSITION SENSOR AMP
IC901
M54544AL
EJECT MOTOR DRIVE
TO POWER SUPPLY CN904
EJECT MOTOR X
EJECT MOTOR Y
SU-10 BOARD
EJECT MOTOR
INPUT0
INPUT1
INPUT2
OUTPUT1
GND
HM-22 BOARD
IC707 (1/4)
μPC339G2
HEAD POSITION A DET
TO POWER SUPPLY CN903
M901
PLATEN MOTOR
Q703, 711
VTH SWITCH
M902
FAN MOTOR
IC710 (6/6)
SN74HC04ANS
INVERTER
Q709
FAN MOTOR DRIVE

HEAD CONTROL, SENSOR HEAD CONTROL, SENSOR

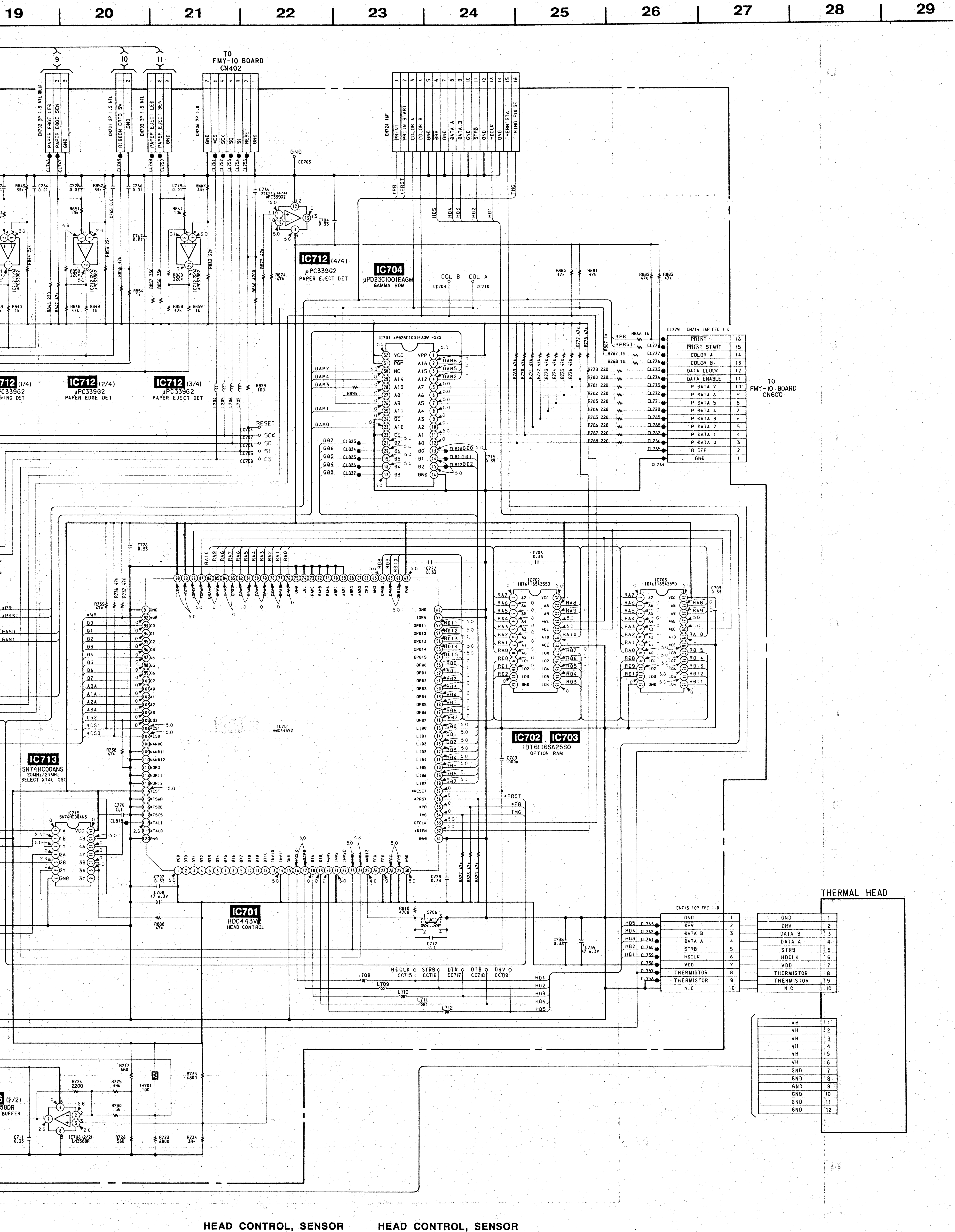
R TRAY SENSOR) SW-41 (PAPER OUT SENSOR) SW-42 (PAPER CHECK SENSOR) SW-208 (PAPER EDGE SENSOR) SW-210 (RIBBON CODE SENS

SW-215 (HEAD MOTOR) SW-216 (RIBBON MOTOR) SW-217 (JAMMING DET SENSOR)



10
11
12
13
14
15
16
17
18
19
20
21
HM-22 BOARD
TO FMY-10 BOARD CN402
IC707 (1/4) μPC339G2 HEAD POSITION A DET
IC707 (2/4) μPC339G2 HAED POSITION B DET
IC707 (3/4) μPC339G2 ROLLER POSITION A DET
IC707 (4/4) μPC339G2 ROLLER POSITION B DET
IC711 (1/4) μPC339G2 PAPER TRAY DT
IC711 (2/4) μPC339G2 RIBBON CODE DET
IC711 (3/4) μPC339G2 RIBBON MARK A DET
IC711 (4/4) μPC339G2 RIBBON MARK B DET
IC712 (1/4) μPC339G2 JAMMING DET
IC712 (2/4) μPC339G2 PAPER EDGE DET
IC712 (3/4) μPC339G2 PAPER EJECT DET
IC708 CXP80P116Q-236 MECHANISM COTROL
Q710 22V SWITCH
IC710 (1/6)-(4/6) SN74HC04ANS INVERTER
Q705,706,707,708 PLATEN MOTOR DRIVE
Q703,711 VTH SWITCH
IC706 LM358DR V CONT AMP
Q701 SWITCH
Q702 SWITCH
IC710 (5/6) SN74HC04ANS INVERTER
IC714 TC7WU04F 20MHz/24MHz XTAL OSC
IC713 SN74HC00ANS 20MHz/24MHz SELECT XTAL OSC
IC701 HDC443V HEAD CONTROL
IC709 MB3863PF RIBON MOTOR, HEAD MOTOR DRIVE
IC710 (6/6) SN74HC04ANS INVERTER
Q709 FAN MOTOR DRIVE
IC706 (2/2) LM358DR V CONT BUFFER
CN717 12P FFC 1.0
CN716 15P 2.0 NTL
CN709 6P 2.0 NTL
CN707 2P 2.0 RED
HEAD MOTOR X
HEAD MOTOR Y
CN708 2P 2.0 BLK
RIBBON MOTOR X
RIBBON MOTOR Y
CN712 2P 2.0 NTL
+12V
FAN MTR
CN725 2P 2.0 NTL
13 5P 1.5 NTL
INPUT0
INPUT1
INPUT2
OUTPUT1
V CONT
TEST
X703 24MHz
X701 20MHz

NSOR) SW-210 (RIBBON CODE SENSOR) SW-211 (RIBBON MARK SENSOR)

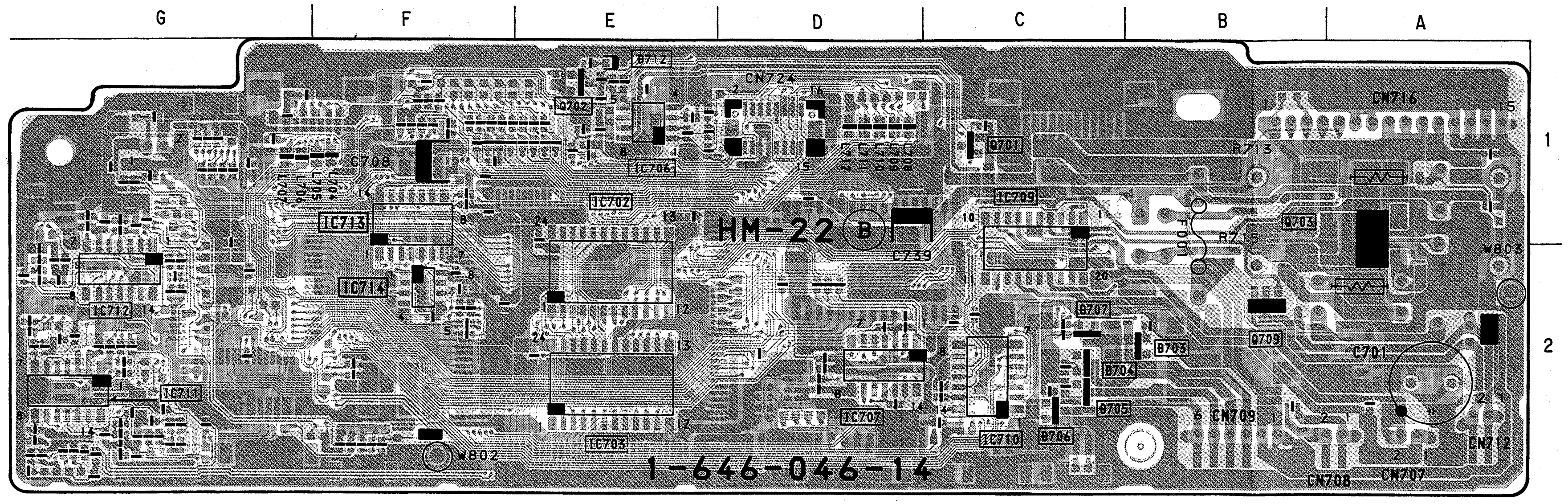

19
20
21
22
23
24
25
26
27
28
29
TO FMY-10 BOARD CN402
IC712 (1/4) μPC339G2 TIMING DET
IC712 (2/4) μPC339G2 PAPER EDGE DET
IC712 (3/4) μPC339G2 PAPER EJECT DET
IC712 (4/4) μPC339G2 PAPER EJECT DET
IC704 μPD23C1001EAGW GAMMA ROM
COL B
COL A
TO FMY-10 BOARD CN600
CN714 16P FFC 1.0
PRINT
PRINT START
COLOR A
COLOR B
DATA CLOCK
DATA ENABLE
P DATA 7
P DATA 6
P DATA 5
P DATA 4
P DATA 3
P DATA 2
P DATA 1
P DATA 0
R OFF
GND
IC701 HDC443V2 HEAD CONTROL
IC702, IC703 IDT6116SA25SO OPTION RAM
IC713 SN74HC00ANS 20MHz/24MHz SELECT XTAL OSC
IC706 (2/2) LM358DR BUFFER
RESET
SCK
SO
SI
CS
CN715 10P FFC 1.0
THERMAL HEAD
GND
DRV
DATA B
DATA A
STRB
HDCLK
VDD
THERMISTOR
THERMISTOR
N.C
VH
GND

HEAD CONTROL, SENSOR HEAD CONTROL, SENSOR

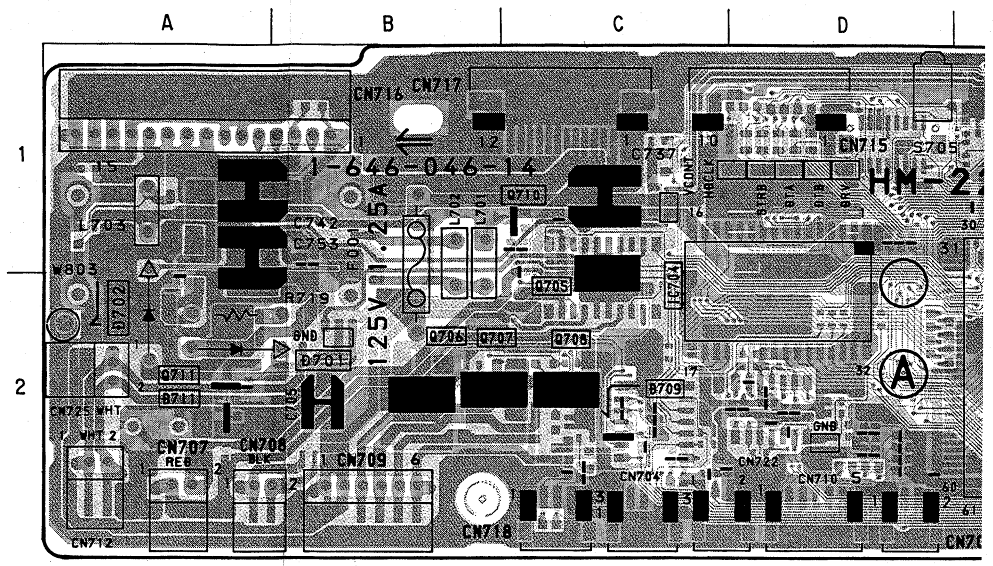
HM-22P HM-22P

HM-22P (THERMAL HEAD CONTROL) DUS-12 (PAPER EJECT MOTOR CONTROL) SU-10 (EJECT MOTOR) SW-39 (PAPER TRAY SENSOR) SW-41 (PAPER OUT SENSOR) SW-42 (PAPER

SW-212 (HEAD POSITION SENSOR) SW-213 (PAPER ROLLER POSITION SENSOR) SW-214 (RIBBON CASSETTE SWITCH) SW-215 (HEAD MOTOR) SW-216 (RIBBON MOTOR) SW-217 (JA


G
F
E
D
C
B
A
1
2
HM-22
1-646-046-14
CN716
CN724
CN709
CN708
CN707
CN712
IC702
IC703
IC706
IC707
IC709
IC710
IC711
IC712
IC713
IC714
Q701
Q702
Q703
Q709
C701
C708
C739
W802
W803
R713

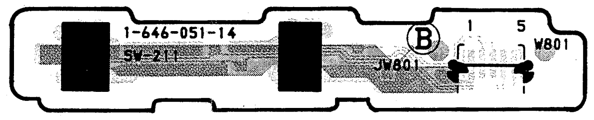
HM-22P(H) -SOLDERING SIDE-


A
B
C
D
1
2
1-646-046-14
HM-2
CN716
CN717
CN715
CN707 RED
CN708 BLK
CN709
CN718
CN704
CN710
CN712
CN722
CN725 WHT
F001
125V 1.25A
Q705
Q706
Q707
Q708
Q710
Q711
D701
R719
W803
GND

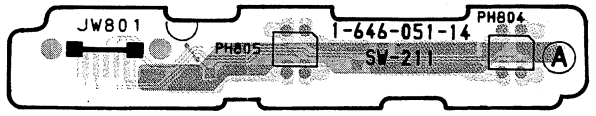
HM-22P BOARD

CN701	D-2		IC706	E-1	S
CN702	F-2		IC707	D-2	S
CN703	G-1		IC708	G-2	
CN704	C-2		IC709	C-2	S
CN705	G-2		IC710	D-2	S
CN706	G-1		IC711	G-2	S
CN707	A-2		IC712	G-2	S
CN708	A-2		IC713	F-1	S
CN709	B-2		IC714	F-2	S
CN710	D-2				
CN711	G-2		L701	B-1	
CN712	A-2		L702	B-1	
CN713	G-2		L703	A-1	
CN714	F-1		L704	F-1	S
CN715	D-1		L705	F-1	S
CN716	A-1		L706	G-1	S
CN717	C-1		L707	G-1	S
CN718	C-2		L708	D-1	S
CN719			L709	D-1	S
CN721	G-1		L710	D-1	S
CN722	C-2		L711	D-1	S
CN723	G-2		L712	D-1	S
CN724	D-1	S			
CN725	A-2		Q701	C-1	S
			Q702	E-1	S
D701	A-2		Q703	B-1	S
D702	A-2		Q705	C-2	
D703	B-2	S	Q706	B-2	
D704	C-2	S	Q707	B-2	
D705	C-2	S	Q708	C-2	
D706	C-2	S	Q709	B-2	S
D707	C-2	S	Q710	C-1	
D709	C-2		Q711	A-2	
D711	A-2				
D712	E-1	S	S705	D-1	
			S706	E-1	
F001	B-1	S			
			TH701	E-1	
IC701	E-2				
IC702	E-2	S	X701	F-2	
IC703	E-2	S	X702	F-2	
IC704	D-2		X703	F-2	

S:SOLDERING SIDE


1-646-051-14
SW-211
B
JW801
W801
1
5

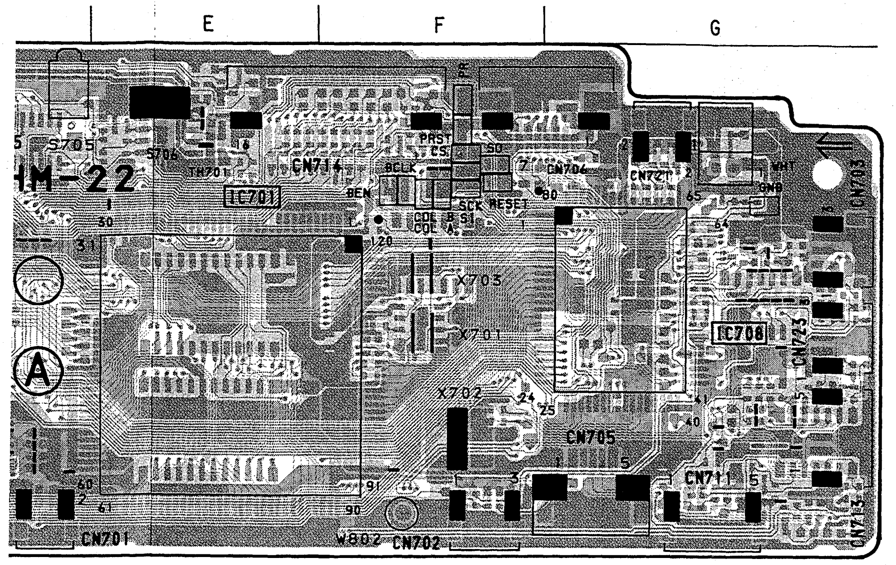
SW-211 -SOLDERING SIDE-


JW801
PH804
PH805
1-646-051-14
SW-211
A

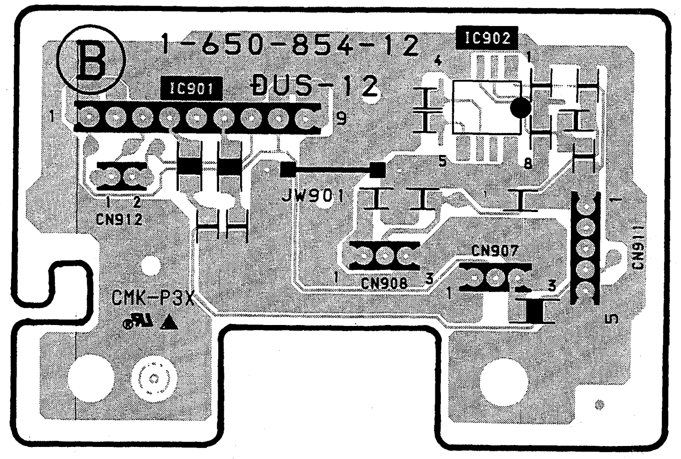
SW-211 -COMPONENT SIDE-

S

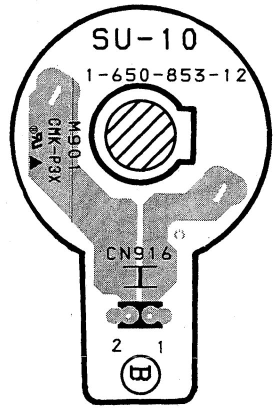
APER CHECK SENSOR) SW-208 (PAPER EDGE SENSOR) SW-210 (RIBBON CODE SENSOR) SW-211 (RIBBON MARK SENSOR)
217 (JAMMING DET SENSOR)


E
F
G
HM-22
IC701
IC706
CN703
CN705
CN701
CN702
CN713
X701
X702
X703
W802
A

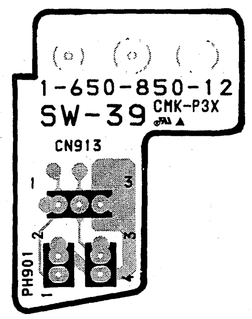
HM-22P(H) -COMPONENT SIDE-


B
1-650-854-12
DUS-12
IC901
IC902
CN912
CN907
CN908
CN911
JW901
CMK-P3X

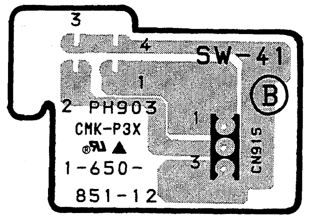
DUS-12 -SOLDERING SIDE-


SU-10
1-650-853-12
M901
CMK-P3X
CN916
2
1
B

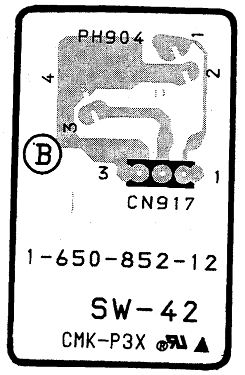
SU-10 -SOLDERING SIDE-


1-650-850-12
SW-39
CMK-P3X
CN913
PH901

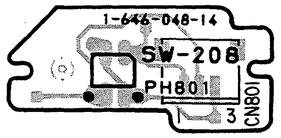
SW-39 -COMPONENT SIDE-


SW-41
B
PH903
CMK-P3X
1-650-851-12
CN915

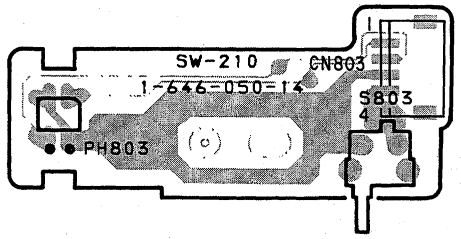
SW-41 -SOLDERING SIDE-


PH904
B
CN917
1-650-852-12
SW-42
CMK-P3X

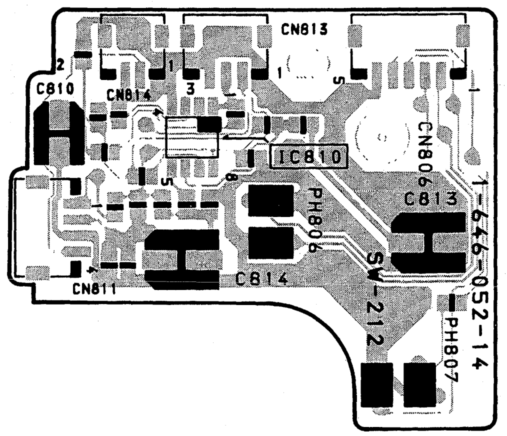
SW-42 -SOLDERING SIDE-


1-646-048-14
SW-208
PH801
CN801

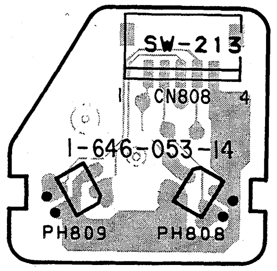
SW-208 -SOLDERING SIDE-


SW-210
CN803
1-646-050-14
S803
PH803

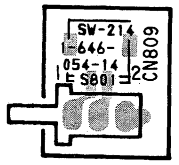
SW-210 -SOLDERING SIDE-


CN813
C810
CN814
IC810
CN806
C813
PH806
C814
CN811
1-646-052-14
SW-212
PH807

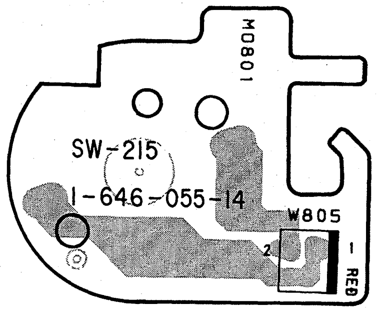
SW-212 -COMPONENT SIDE-


SW-213
CN808
1-646-053-14
PH809
PH808

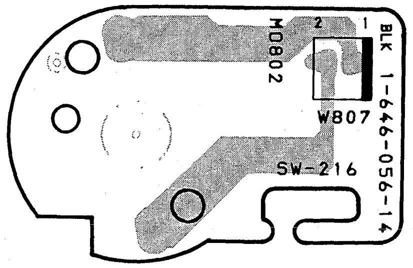
SW-213 -SOLDERING SIDE-


SW-214
1-646-054-14
S801
CN809

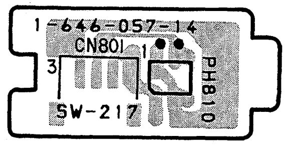
SW-214 -SOLDERING SIDE-


M0801
SW-215
1-646-055-14
W805
RED

SW-215 -SOLDERING SIDE-

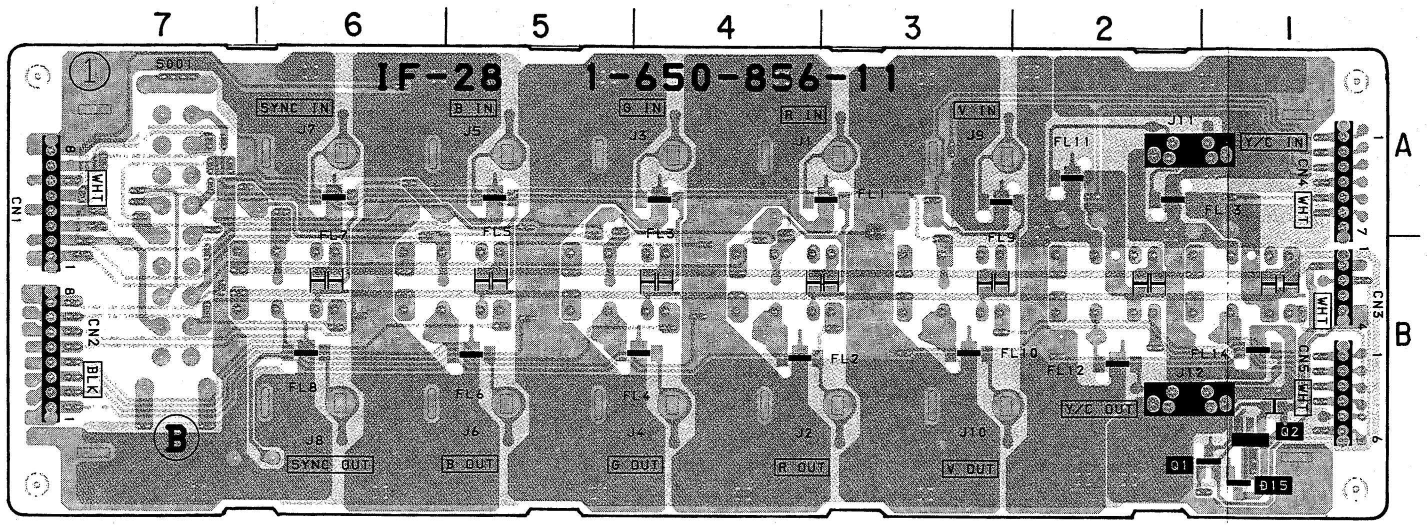

M0802
BLK
1-646-056-14
W807
SW-216

SW-216 -SOLDERING SIDE-

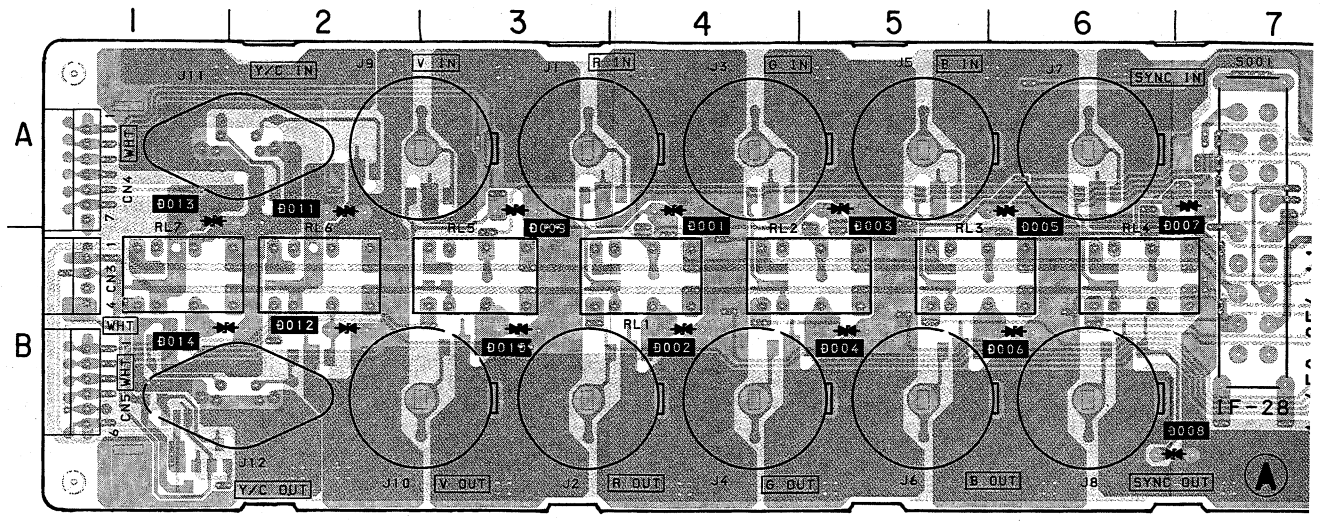

1-646-057-14
CN801
SW-217
PH810

SW-217 -SOLDERING SIDE-

IF-28 (IN/OUT TERMINAL)

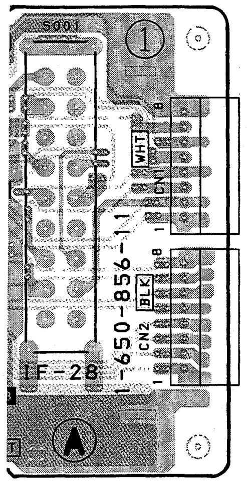

7
6
5
4
3
2
1
A
B
IF-28 1-650-856-11
S001
SYNC IN
B IN
G IN
R IN
V IN
Y/C IN
J7
J5
J3
J1
J9
J11
CN1
CN2
CN3
CN4
CN5
WHT
BLK
FL1
FL2
FL3
FL4
FL5
FL6
FL7
FL8
FL9
FL10
FL11
FL12
FL13
FL14
J8
J6
J4
J2
J10
J12
SYNC OUT
B OUT
G OUT
R OUT
V OUT
Y/C OUT
Q1
Q2
D15

IF-28 -SOLDERING SIDE-


1
2
3
4
5
6
7
A
B
J11
Y/C IN
J9
V IN
J1
R IN
J3
G IN
J5
B IN
J7
SYNC IN
S001
CN4
CN3
CN5
WHT
D013
D011
D009
D001
D003
D005
D007
RL7
RL6
RL5
RL1
RL2
RL3
RL4
D014
D012
D010
D002
D004
D006
D008
J12
Y/C OUT
J10
V OUT
J2
R OUT
J4
G OUT
J6
B OUT
J8
SYNC OUT
IF-28

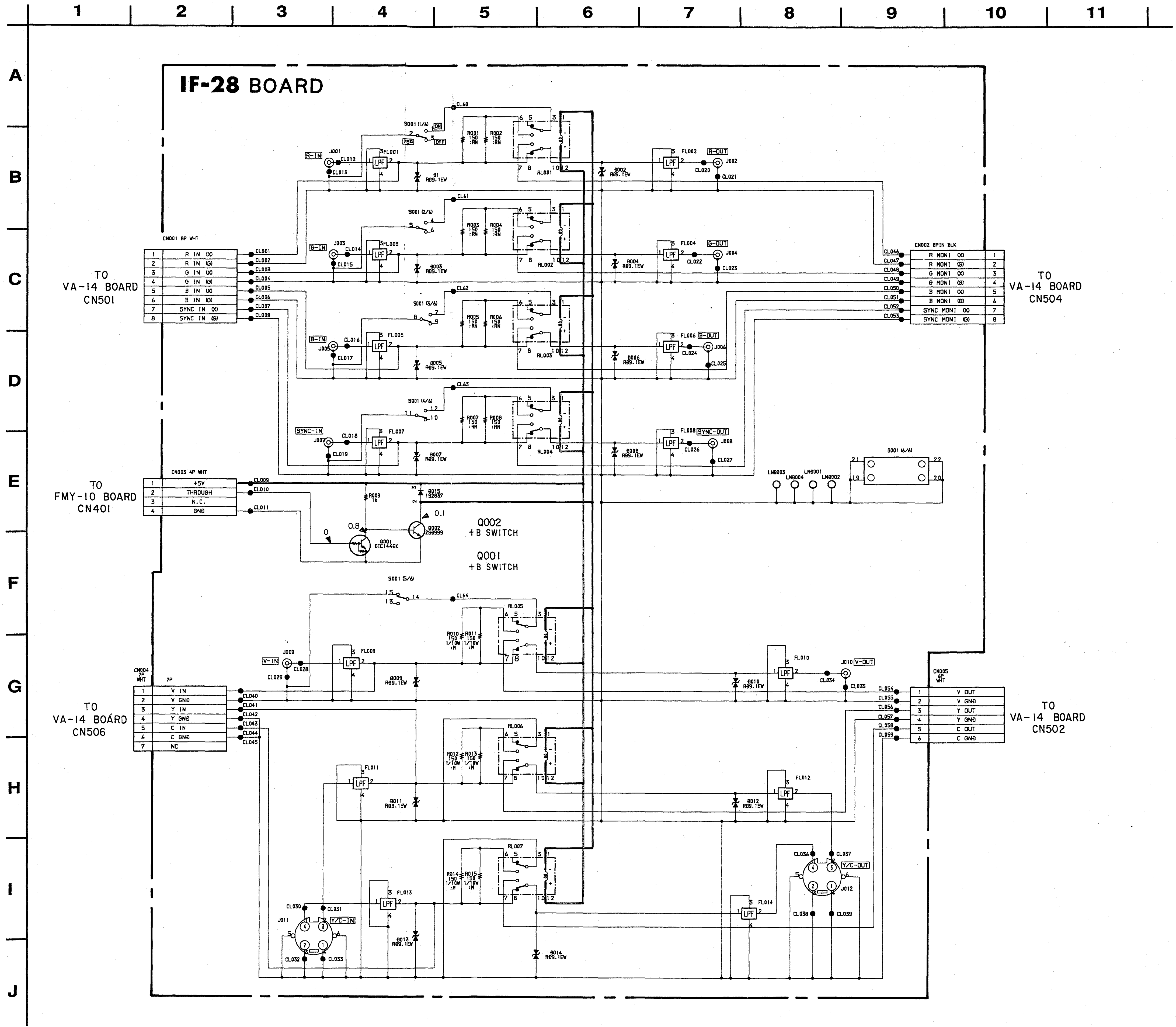
IF-28 -COMPONE

7

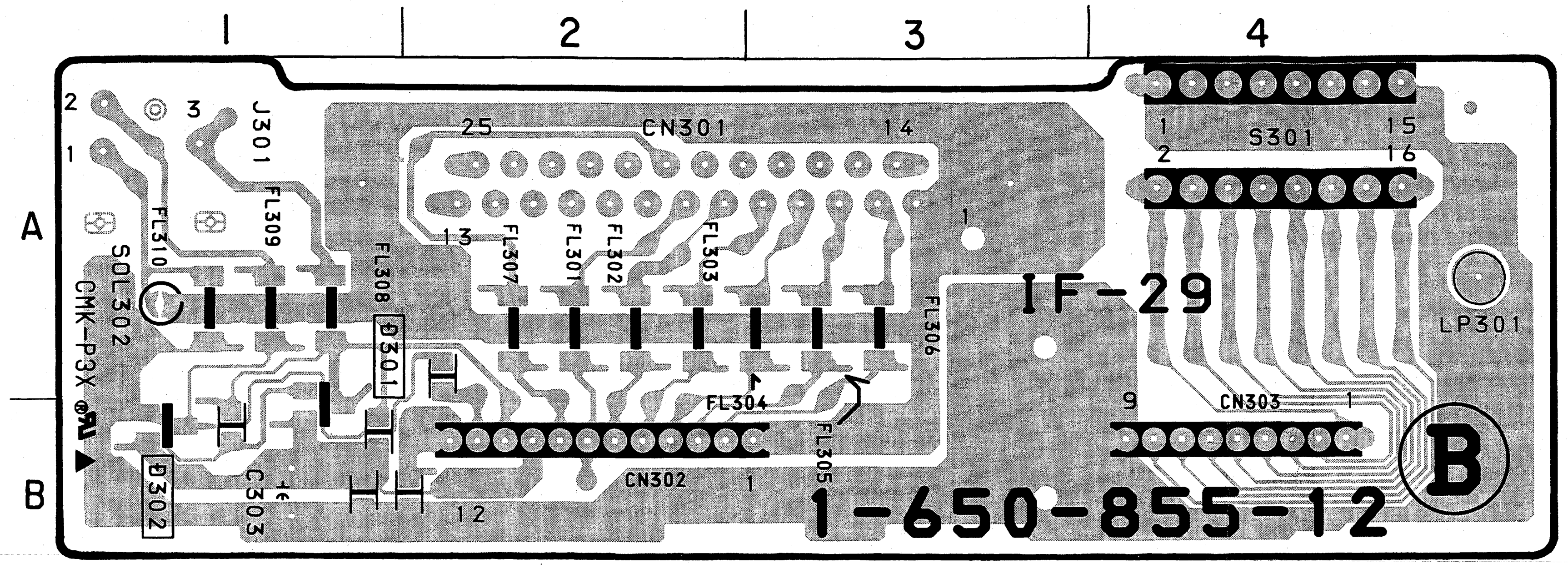

S001
①
WHT
CN1
8
1
1-650-856-11
CN2
BLK
IF-28
Ⓐ

COMPONENT SIDE-

IF-28 (IN/OUT TERMINAL)

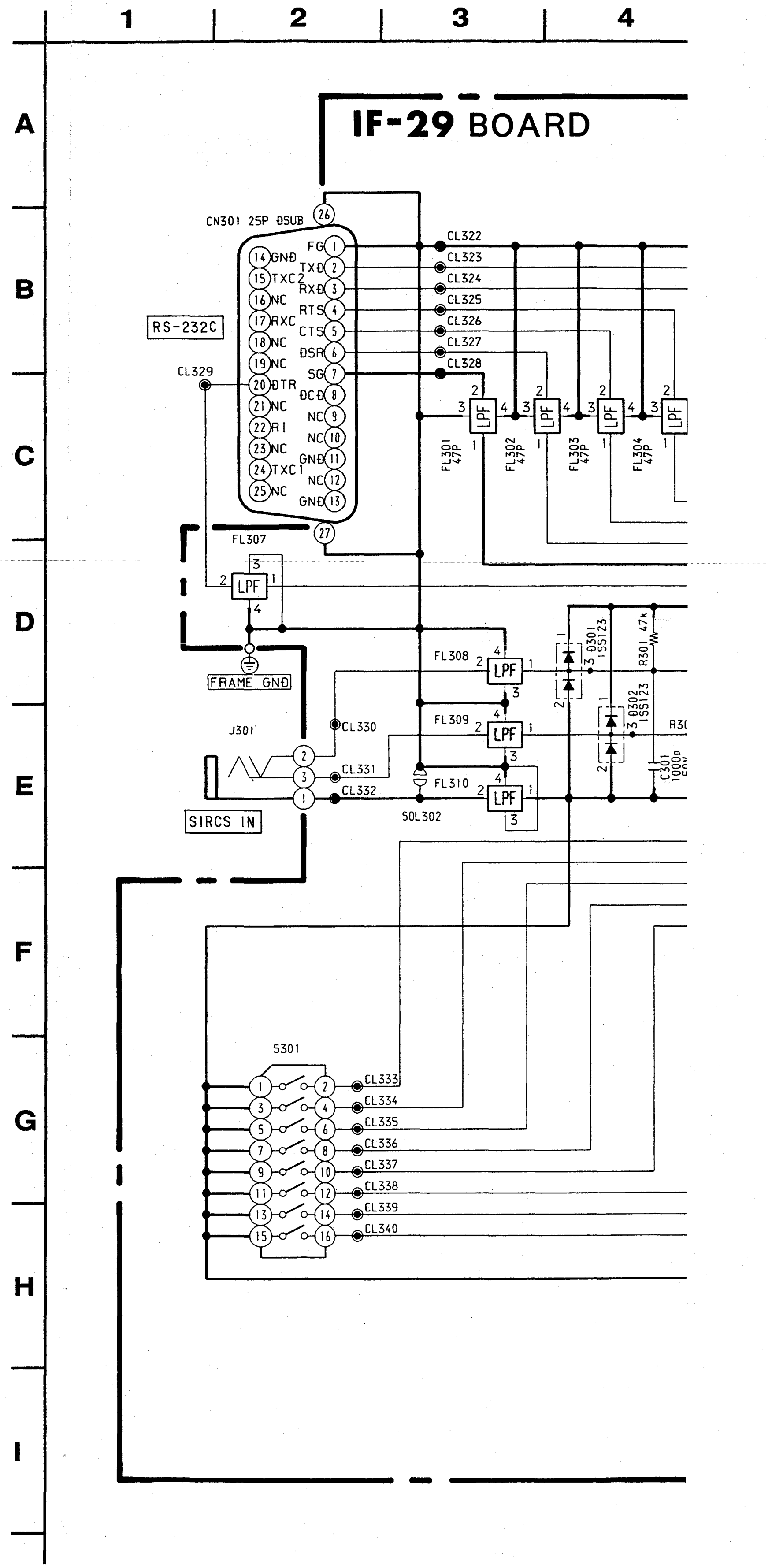

1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
I
J
IF-28 BOARD
TO
VA-14 BOARD
CN501
CN001 8P WHT
R IN (X)
R IN (G)
G IN (X)
G IN (G)
B IN (X)
B IN (G)
SYNC IN (X)
SYNC IN (G)
TO
VA-14 BOARD
CN504
CN002 8PIN BLK
R MONI (X)
R MONI (G)
G MONI (X)
G MONI (G)
B MONI (X)
B MONI (G)
SYNC MONI (X)
SYNC MONI (G)
R-IN
G-IN
B-IN
SYNC-IN
R-OUT
G-OUT
B-OUT
SYNC-OUT
LPF
RL001
RL002
RL003
RL004
S001 (1/6)
S001 (2/6)
S001 (3/6)
S001 (4/6)
S001 (5/6)
S001 (6/6)
75Ω
OFF
TO
FMY-10 BOARD
CN401
CN003 4P WHT
+5V
THROUGH
N.C.
GND
Q002
+B SWITCH
Q001
+B SWITCH
2SD999
DTC144EK
1SS237
TO
VA-14 BOARD
CN506
CN004 7P WHT
V IN
V GND
Y IN
Y GND
C IN
C GND
NC
TO
VA-14 BOARD
CN502
CN005 6P WHT
V OUT
V GND
Y OUT
Y GND
C OUT
C GND
V-IN
V-OUT
Y/C-IN
Y/C-OUT
RL005
RL006
RL007
RD9.1EW

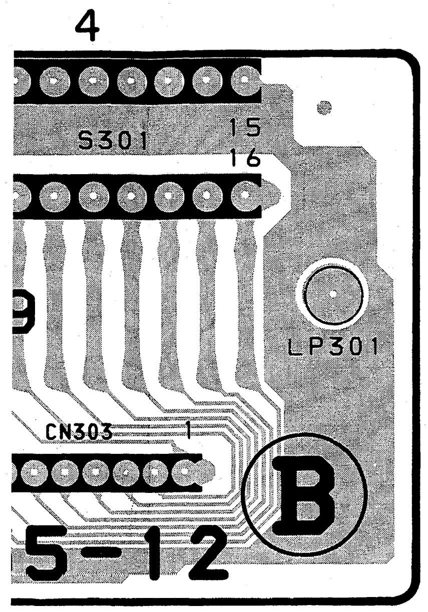
IF-29 (DIP SWITCH/RS-232C TERMINAL)


1
2
3
4
A
B
J301
FL310
FL309
FL308
FL307
FL301
FL302
FL303
FL304
FL305
FL306
SOL302
CMK-P3X
D301
D302
C303
CN301
25
14
13
1
CN302
12
S301
2
15
16
CN303
9
IF-29
LP301
1-650-855-12
B

IF-29 -SOLDERING SIDE-

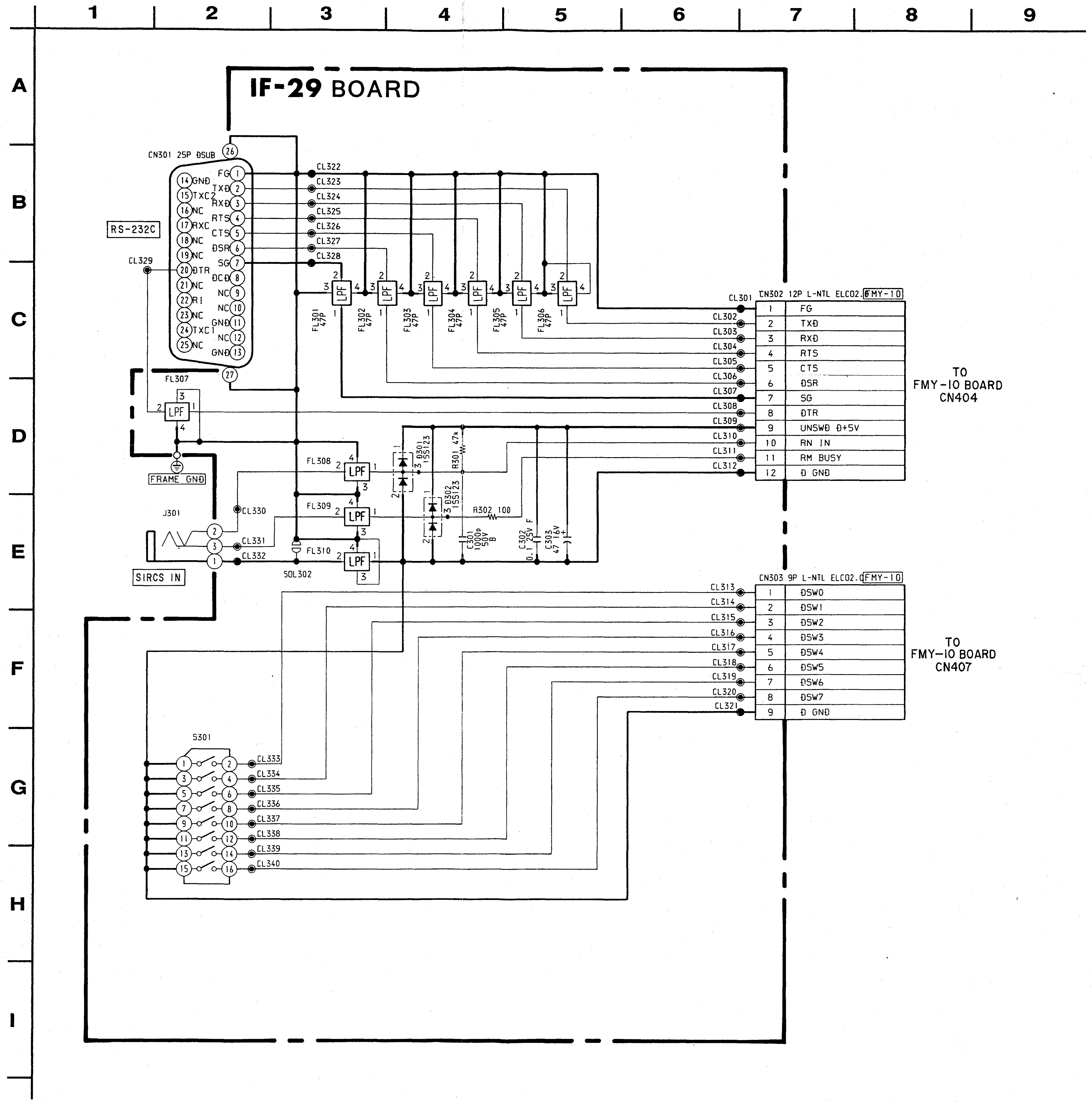
IF-29 (DIP SWITCH/RS-232C TERMINAL)


1
2
3
4
A
B
C
D
E
F
G
H
I
IF-29 BOARD
CN301 25P DSUB
RS-232C
FG
TXD
RXD
RTS
CTS
DSR
SG
DTR
DCD
NC
RI
GND
TXC
RXC
CL322
CL323
CL324
CL325
CL326
CL327
CL328
CL329
FL301 47P
FL302 47P
FL303 47P
FL304 47P
LPF
FL307
FRAME GND
FL308
FL309
FL310
D301 1SS123
D302 1SS123
R301 47k
C301 1000p
J301
SIRCS IN
CL330
CL331
CL332
SOL302
S301
CL333
CL334
CL335
CL336
CL337
CL338
CL339
CL340

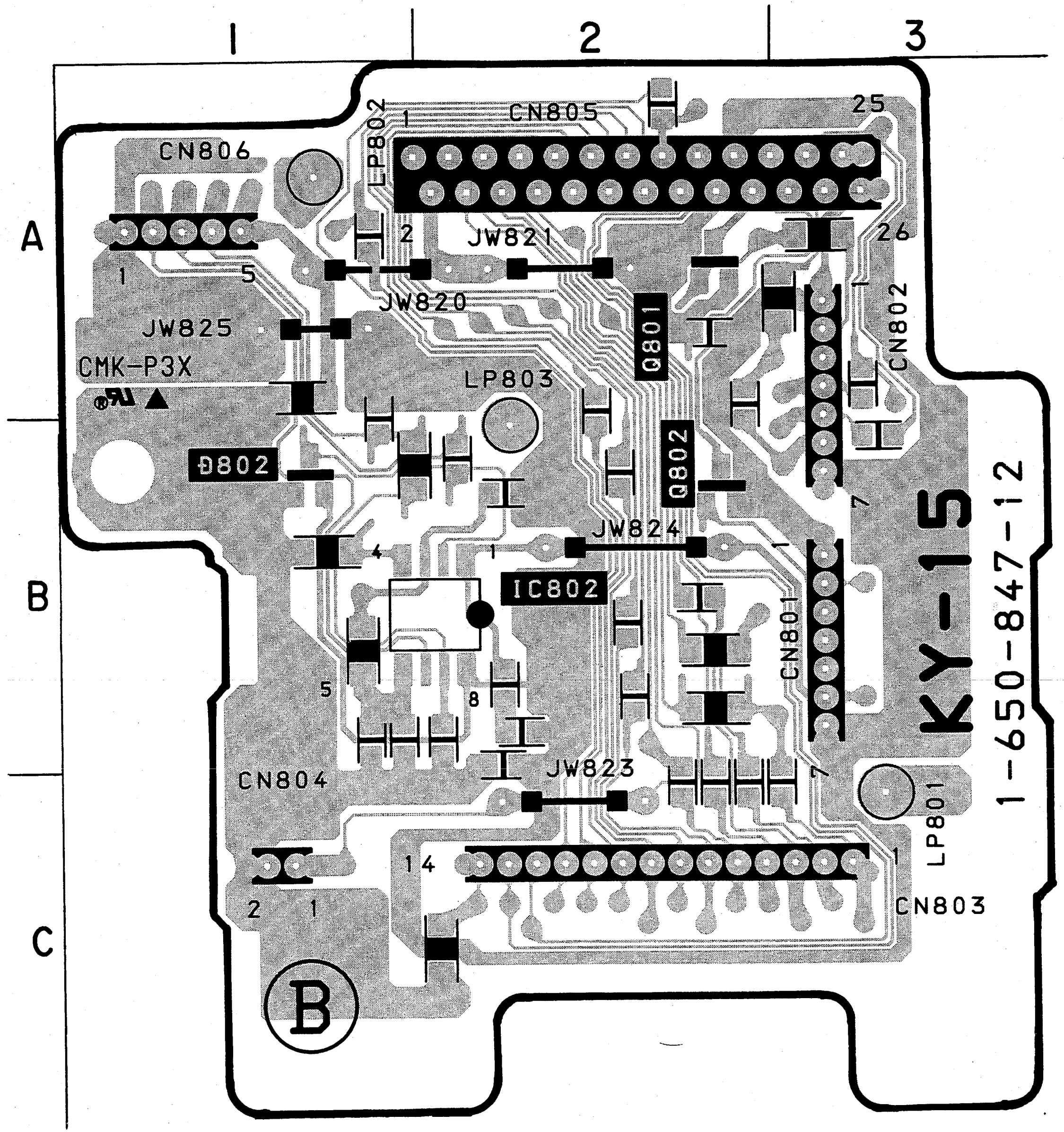

4
S301
15
16
LP301
CN303
B
5-12

IF-29 -SOLDERING SIDE-

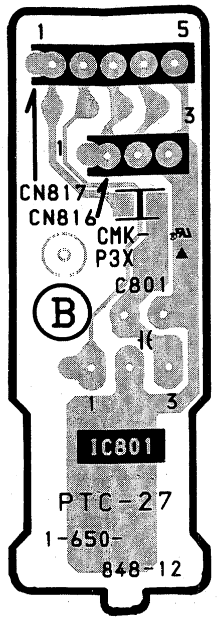
IF-29 (DIP SWITCH/RS-232C TERMINAL)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
G
H
I
IF-29 BOARD
CN301 25P DSUB
RS-232C
CL329
FG 1
TXD 2
RXD 3
RTS 4
CTS 5
DSR 6
SG 7
DCD 8
NC 9
NC 10
GND 11
NC 12
GND 13
14 GND
15 TXC2
16 NC
17 RXC
18 NC
19 NC
20 DTR
21 NC
22 RI
23 NC
24 TXC1
25 NC
26
27
CL322
CL323
CL324
CL325
CL326
CL327
CL328
LPF
FL301 47P
FL302 47P
FL303 47P
FL304 47P
FL305 47P
FL306 47P
FL307
FRAME GND
FL308
FL309
FL310
SOL302
D301 1SS123
D302 1SS123
R301 47k
R302 100
C301 1000p 50V B
C302 0.1 25V F
C303 47 16V
J301
CL330
CL331
CL332
SIRCS IN
CL301
CL302
CL303
CL304
CL305
CL306
CL307
CL308
CL309
CL310
CL311
CL312
CN302 12P L-NTL ELCO2. FMY-10
1 FG
2 TXD
3 RXD
4 RTS
5 CTS
6 DSR
7 SG
8 DTR
9 UNSWD D+5V
10 RN IN
11 RM BUSY
12 D GND
TO FMY-10 BOARD CN404
CL313
CL314
CL315
CL316
CL317
CL318
CL319
CL320
CL321
CN303 9P L-NTL ELCO2. FMY-10
1 DSW0
2 DSW1
3 DSW2
4 DSW3
5 DSW4
6 DSW5
7 DSW6
8 DSW7
9 D GND
TO FMY-10 BOARD CN407
S301
CL333
CL334
CL335
CL336
CL337
CL338
CL339
CL340

KY-15 (FUNCTION SWITCH) PTC-27 (REMOTE CONTROL SENSOR)

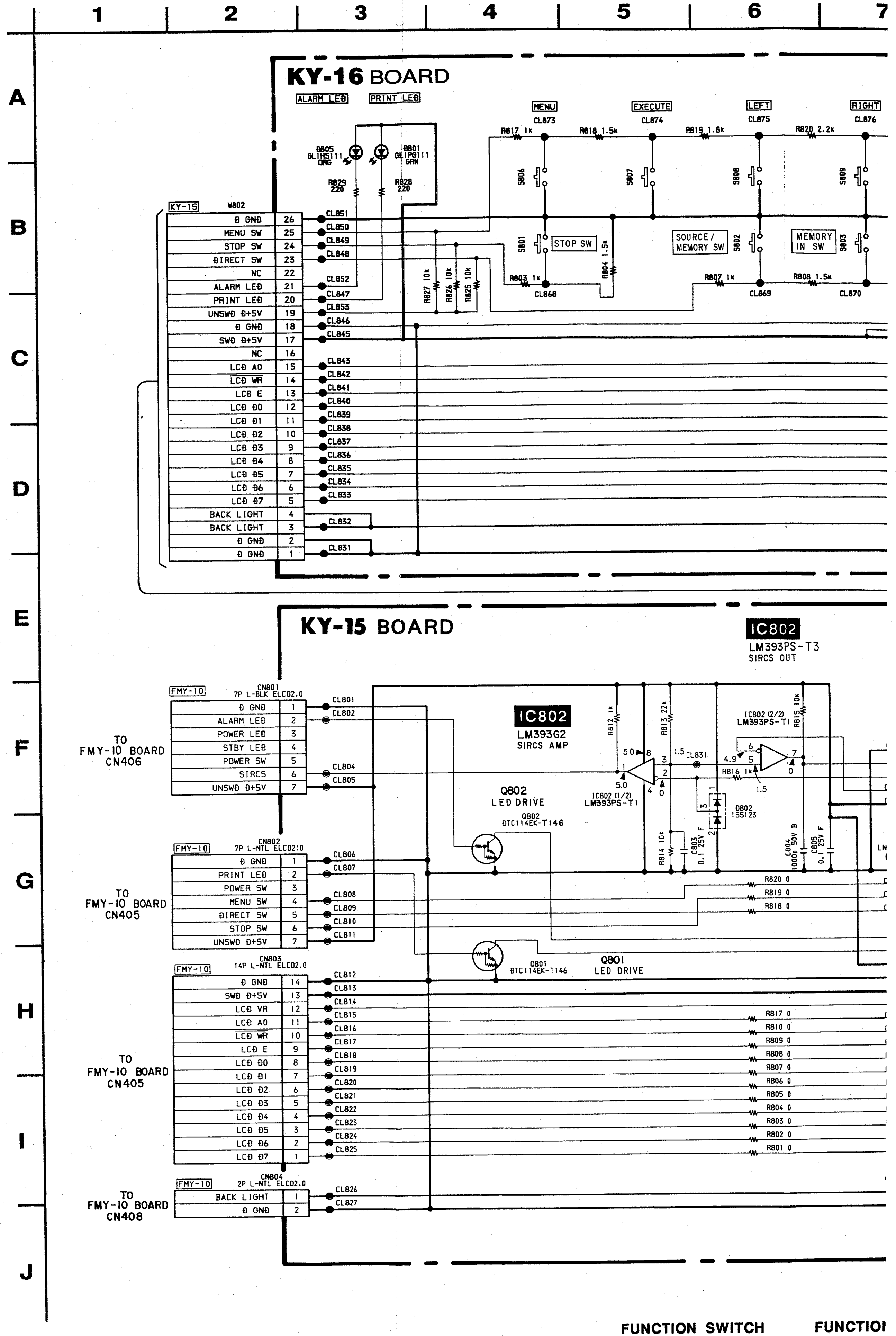

1
2
3
A
B
C
CN806
CN805
LP802
25
26
1
2
1
5
JW821
JW820
JW825
CMK-P3X
LP803
Q801
CN802
Q802
D802
JW824
IC802
4
1
5
8
CN801
KY-15
1-650-847-12
JW823
CN804
7
LP801
14
CN803
2
1
B

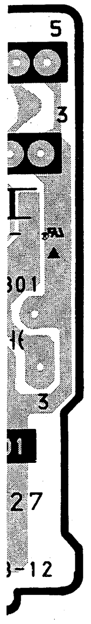
KY-15 -SOLDERING SIDE-


1
5
3
1
CN817
CN816
CMK-P3X
C801
B
1
3
IC801
PTC-27
1-650-848-12

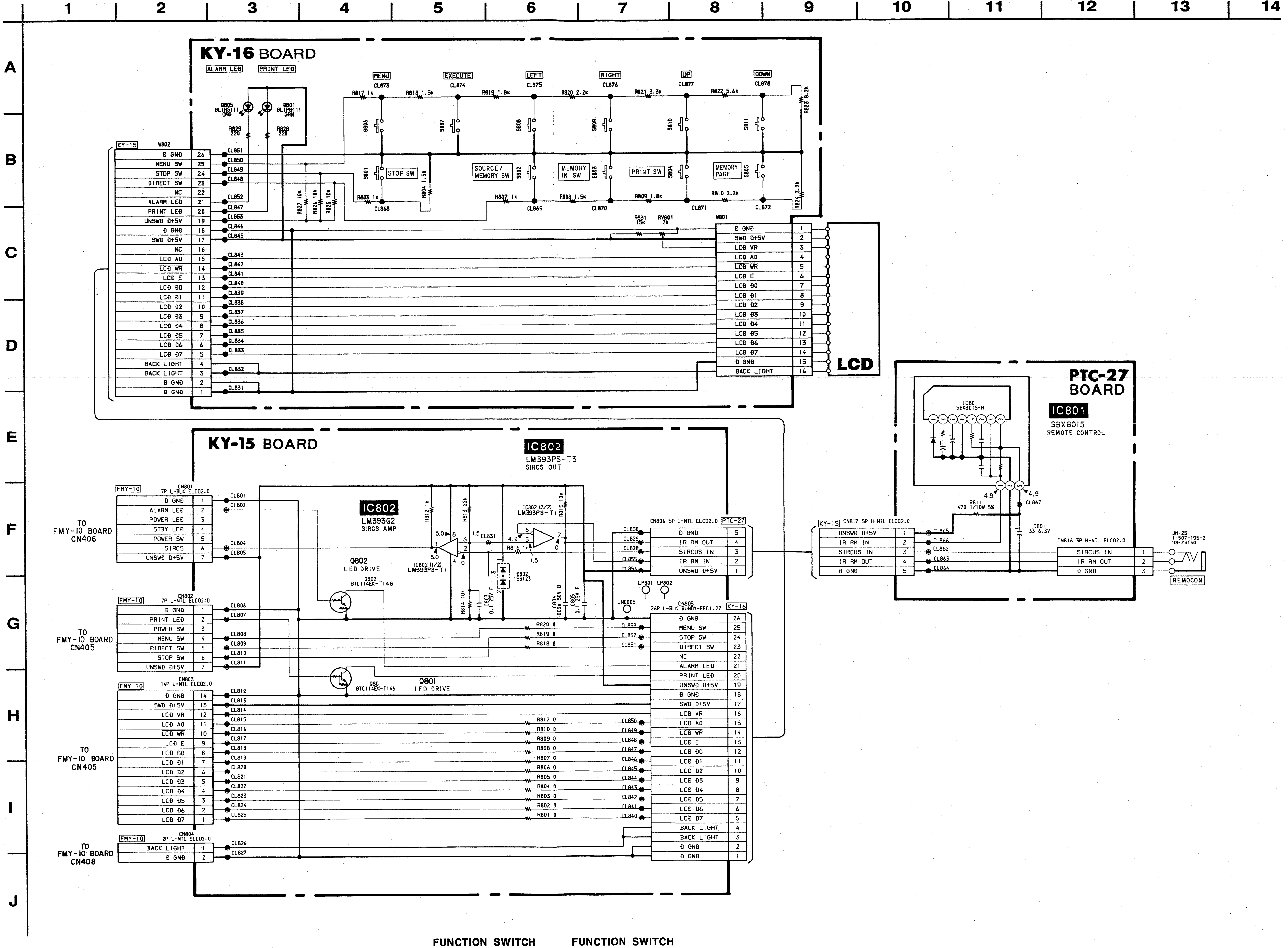
PTC-27 -SOLDERING SIDE-

KY-15 (FUNCTION SWITCH) PTC-27 (REMOTE CONTROL SENSOR)

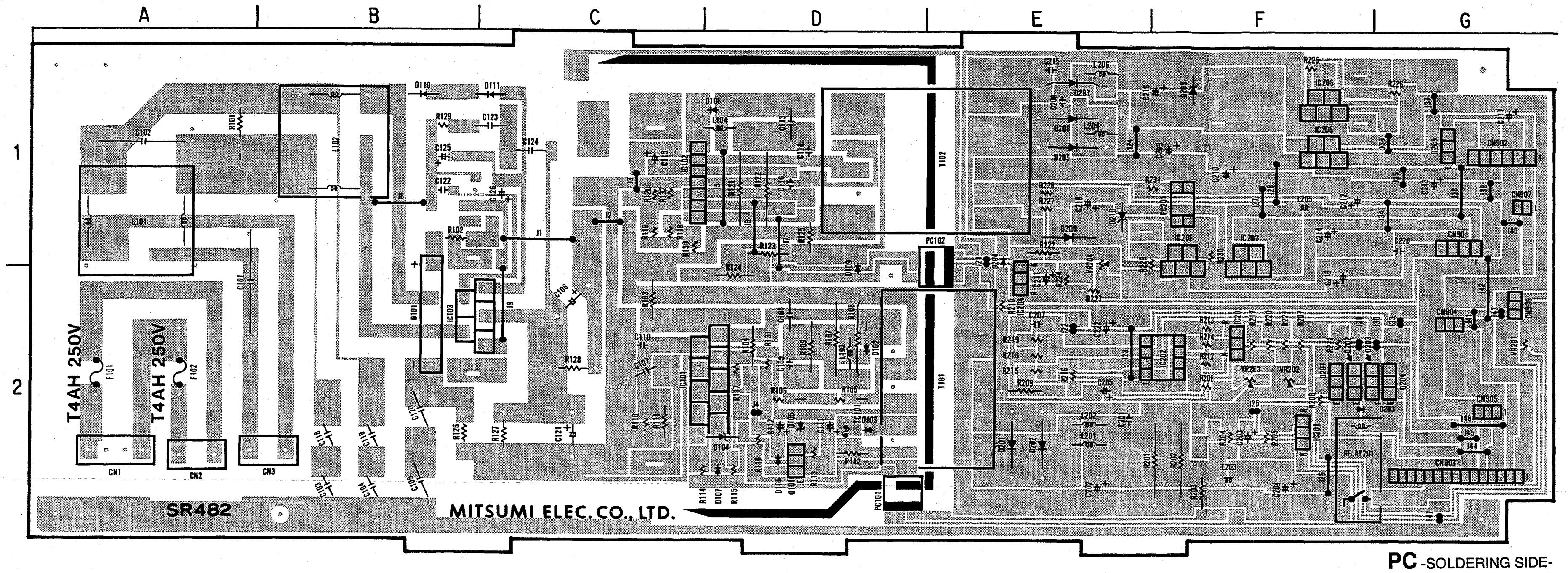

1
2
3
4
5
6
7
A
B
C
D
E
F
G
H
I
J
KY-16 BOARD
ALARM LED
PRINT LED
MENU
EXECUTE
LEFT
RIGHT
D805 GL1HS111 ORG
D801 GL1PG111 GRN
R829 220
R828 220
S806
S807
S808
S809
S801
STOP SW
S802
SOURCE/MEMORY SW
S803
MEMORY IN SW
KY-15
W802
B GND
MENU SW
STOP SW
DIRECT SW
NC
ALARM LED
PRINT LED
UNSWD B+5V
SWD B+5V
LCD A0
LCD WR
LCD E
LCD D0
LCD D1
LCD D2
LCD D3
LCD D4
LCD D5
LCD D6
LCD D7
BACK LIGHT
KY-15 BOARD
IC802
LM393PS-T3
SIRCS OUT
LM393G2
SIRCS AMP
Q802
LED DRIVE
DTC114EK-T146
Q801
LED DRIVE
D802 1SS123
FMY-10
CN801 7P L-BLK ELC02.0
TO FMY-10 BOARD CN406
POWER LED
STBY LED
POWER SW
SIRCS
CN802 7P L-NTL ELC02.0
TO FMY-10 BOARD CN405
CN803 14P L-NTL ELC02.0
LCD VR
TO FMY-10 BOARD CN405
CN804 2P L-NTL ELC02.0
TO FMY-10 BOARD CN408


5
3
3
01
27
-12
.DERING SIDE-

KY-15 (FUNCTION SWITCH) PTC-27 (REMOTE CONTROL SENSOR)


1
2
3
4
5
6
7
8
9
10
11
12
13
14
A
B
C
D
E
F
G
H
I
J
KY-16 BOARD
ALARM LED
PRINT LED
MENU
EXECUTE
LEFT
RIGHT
UP
DOWN
STOP SW
SOURCE/ MEMORY SW
MEMORY IN SW
PRINT SW
MEMORY PAGE
LCD
KY-15 BOARD
IC802
LM393PS-T3
SIRCS OUT
IC802
LM393G2
SIRCS AMP
Q802
LED DRIVE
DTC114EK-T146
Q801
LED DRIVE
DTC114EK-T146
TO FMY-10 BOARD CN406
TO FMY-10 BOARD CN405
TO FMY-10 BOARD CN405
TO FMY-10 BOARD CN408
PTC-27 BOARD
IC801
SBX8015
REMOTE CONTROL
REMOCON
D GND
MENU SW
STOP SW
DIRECT SW
NC
ALARM LED
PRINT LED
UNSWD D+5V
SWD D+5V
LCD VR
LCD A0
LCD WR
LCD E
LCD D0
LCD D1
LCD D2
LCD D3
LCD D4
LCD D5
LCD D6
LCD D7
BACK LIGHT
POWER LED
STBY LED
POWER SW
SIRCS
SIRCUS IN
IR RM IN
IR RM OUT

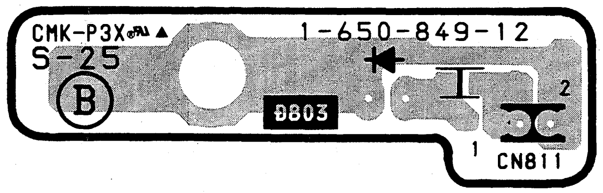
SWITCHING REGULATOR S-25 (POWER SUPPLY)


A
B
C
D
E
F
G
1
2
T4AH 250V
T4AH 250V
CN1
CN2
CN3
SR482
MITSUMI ELEC. CO., LTD.
PC102
PC101
T101
T102
CN902
CN907
CN901
CN904
CN905
CN903
RELAY201

PC -SOLDERING SIDE-
9-907-119-01

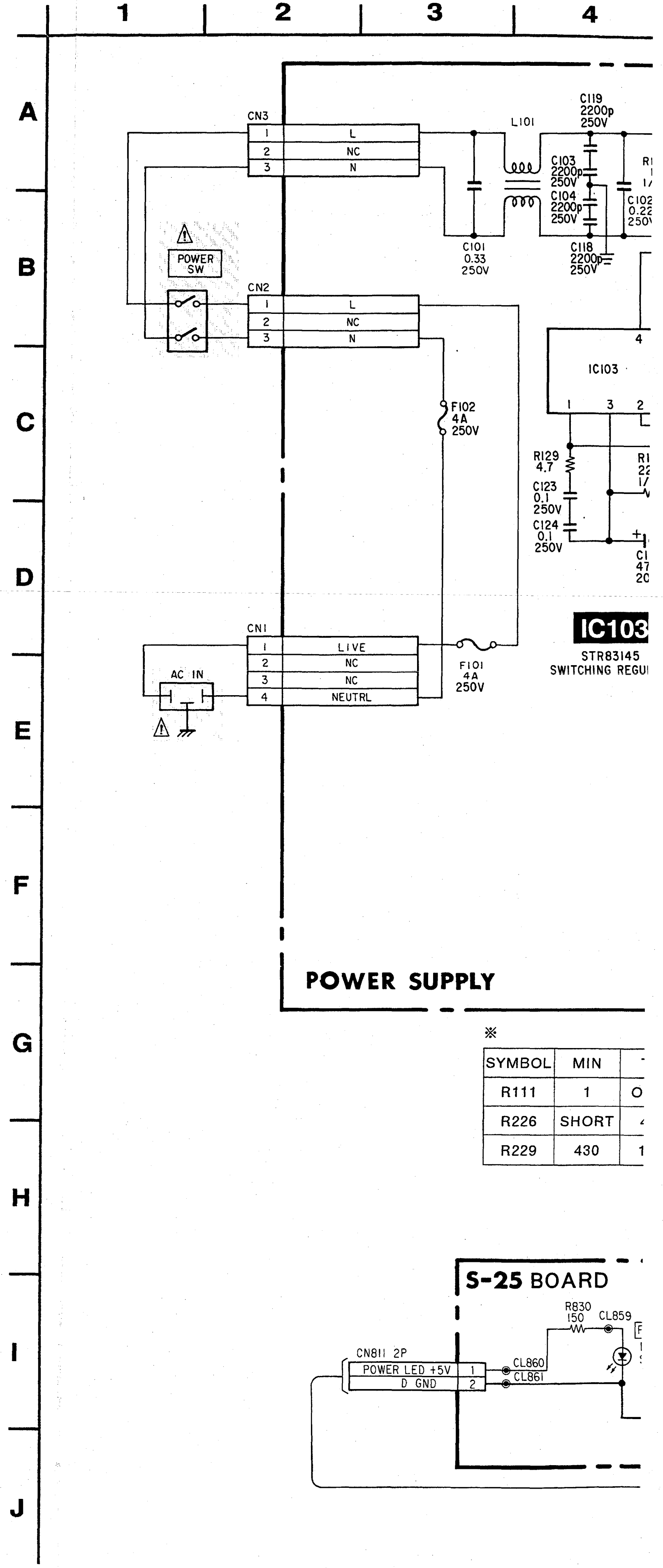
SWITCHING REGULATOR

CN1	A-2
CN2	A-2
CN3	B-2
CN901	G-1
CN902	G-1
CN903	G-2
CN904	G-2
CN905	G-2
CN906	G-2
CN907	G-1
D101	B-2
D102	D-2
D103	D-2
D104	D-2
D105	D-2
D106	D-2
D107	D-2
D108	D-1
D109	D-1
D201	E-2
D202	E-2
D203	F-2
D204	E-1
D205	E-1
D206	E-1
D207	E-1
D208	F-1
D209	E-1
D210	E-1
F101	
IC101	C-2
IC102	C-1
IC201	F-2
IC202	F-2
IC203	F-2
IC204	E-2
IC205	F-1
IC206	F-1
IC207	F-1
IC208	F-1
L101	A-1
L102	B-1
L103	D-1
L104	D-1
L201	E-2
L202	E-2
L203	F-1
L204	E-1
L205	F-1
L206	E-1
PC101	D-2
PC102	E-1
PC201	F-1
Q101	D-2
Q202	F-2
Q202	F-2
Q203	F-2
Q204	G-2
Q205	G-1
RL201	F-2
T101	E-2
T102	E-1
RV201	G-2
RV202	F-1
RV203	F-1
RV204	E-1

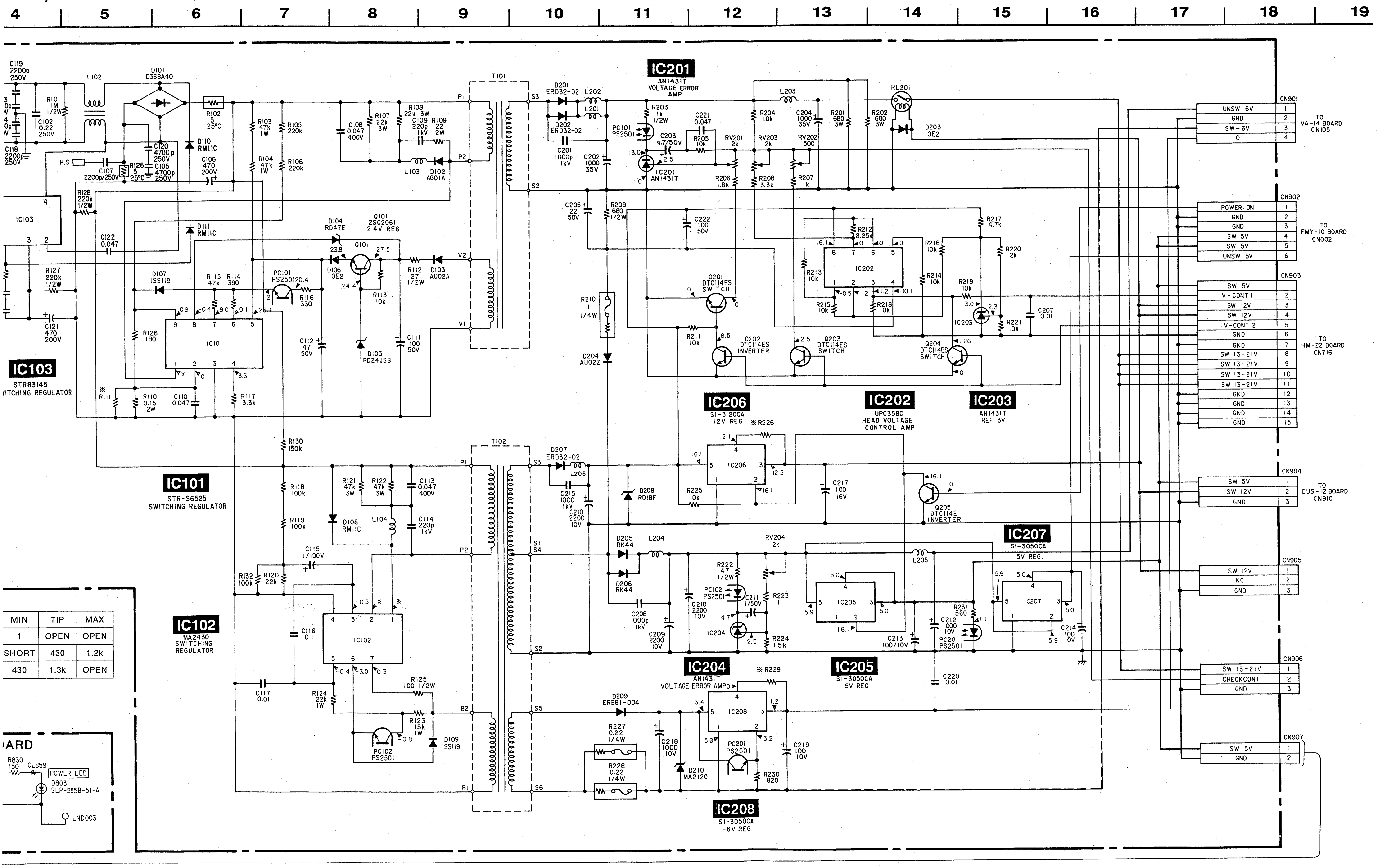

CMK-P3X
S-25
B
1-650-849-12
D803
1
2
CN811

S-25 -SOLDERING SIDE-

SWITCHING REGULATOR S-25 (POWER SUPPLY)


1
2
3
4
A
B
C
D
E
F
G
H
I
J
CN3
L
NC
N
L101
C119 2200p 250V
C103 2200p 250V
C104 2200p 250V
C102 0.22 250V
C101 0.33 250V
C118 2200p 250V
POWER SW
CN2
L
NC
N
IC103
F102 4A 250V
R129 4.7
C123 0.1 250V
C124 0.1 250V
CN1
LIVE
NC
NC
NEUTRL
AC IN
F101 4A 250V
IC103
STR83145 SWITCHING REGU
POWER SUPPLY
※
SYMBOL
MIN
R111
1
R226
SHORT
R229
430
S-25 BOARD
CN811 2P
POWER LED +5V
D GND
R830 150
CL859
CL860
CL861

JPPLY)


4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
IC201
AN1431T
VOLTAGE ERROR AMP
IC101
STR-S6525
SWITCHING REGULATOR
IC102
MA2430
SWITCHING REGULATOR
IC103
STR83145
ITCHING REGULATOR
IC202
UPC358C
HEAD VOLTAGE CONTROL AMP
IC203
AN1431T
REF 3V
IC204
AN1431T
VOLTAGE ERROR AMP
IC205
SI-3050CA
5V REG
IC206
SI-3120CA
12V REG
IC207
SI-3050CA
5V REG.
IC208
SI-3050CA
-6V REG
T101
T102
RL201
CN901
UNSW 6V 1
GND 2
SW-6V 3
0 4
TO VA-14 BOARD CN105
CN902
POWER ON 1
GND 2
GND 3
SW 5V 4
SW 5V 5
UNSW 5V 6
TO FMY-10 BOARD CN002
CN903
SW 5V 1
V-CONT1 2
SW 12V 3
SW 12V 4
V-CONT 2 5
GND 6
GND 7
SW 13-21V 8
SW 13-21V 9
SW 13-21V 10
SW 13-21V 11
GND 12
GND 13
GND 14
GND 15
TO HM-22 BOARD CN716
CN904
SW 5V 1
SW 12V 2
GND 3
TO DUS-12 BOARD CN910
CN905
SW 12V 1
NC 2
GND 3
CN906
SW 13-21V 1
CHECKCONT 2
GND 3
CN907
SW 5V 1
GND 2
ARD
POWER LED
D803
SLP-255B-51-A
LND003

MIN	TIP	MAX
1	OPEN	OPEN
SHORT	430	1.2k
430	1.3k	OPEN

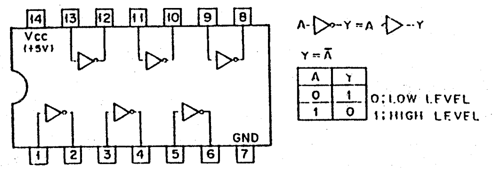
4-3. SEMICONDUCTORS

The chart in this section may sometimes show diodes, transistors, and ICs that are not interchangeable. When replacing a component, be sure to refer to the parts list. The circuit diagram of each IC is obtained from the IC data book published by the manufacturer.

TYPE	PAGE	TYPE	PAGE	TYPE	PAGE
1S2836	197	CXA1437Q	179	PQ05SZ1U	190
1SS184	197	CXA1621S	179	PQ05TZ1U	190
1SS226	197	CXD1159Q	179	S-8054ALB-LM-S	191
1T33C-01	197	CXD1176Q	180	SN74HC00ANS	191
2SA1162-G	197	CXD1178Q	181	SN74HC04ANS	191
2SA1226	197	CXD2024Q	181	SN74HC10ANS	191
2SB962	197	CXD8391Q	182	SN74HC138ANS	191
2SC1623	197	CXD8398Q	182	SN74HC157ANS	191
2SD992	197	CXD8444Q	183	SN74HC20ANS	191
2SD999-CLCK	197	CXP80P116Q-1	183	SN74HC32ANS	192
10E-2	197	CXP80P116Q-1-240	183	SN74HC541ANS	192
DTA114EK	197	DS1000S-50	183	SN74HC574ANS	192
DTC114EK	197	DS1000S-75	183	SN74LS157NS	192
DTC124EK	197	HDC443V2	184	SN74LS221NS	192
DTC144EK	197	HD6413378F10	184	TC7W00F	192
MA8027-L	197				
		HD6475368F-FMY10-01	185	TC7WU04F	192
GP1S23	197	HM514400AS7GS-EL	186	TL072CPS	193
GP1S54	197	IDT6116SA25S0	186	TL082M	193
RD9.1EW	197	LM358D	186	TL431CPS	193
SLP-255B	197	M27C512-UP18PSYV1.00	187	UPC339G2	193
XN1501	197	M50555-218FP-TE2	187	UPC324G2	193
XN2401	197	M54544AL	187	UPC393G2	193
XN2501	197	M5M27C201FP-UP18M-E2	187	UPD4713GT	193
XN4501	197	M5M27C201FP-UP18S-E2	187	UPD65006GF-250-3B8	193
XN4601	197	M5M27C201FP-UP18R-E2	187	UPD65013GF-407-3BA	194
GP2S40K	197	M62352GP	188	UPD71051GB-10-3B4	194
SBX8015-H	197	MB3863PF-G-BND	188	UPD71055GB-10-3B4	195
74F04SJ	178	MB89093PFV-G-122-BND	189	V7040	196
74F08SJ	178	MC74HC4053F	189		
74F257ASJ	178	MC74HC4538F	189		
74F32SJ	178	NJM2230M	190		
74F86SJ	178	NJM2233BM	190		
AK6420F	178	NJM2240M	190		
BA7046F	178	NJM2246M	190		
CXA1211M	179	NJM4560M	190		

74F04SJ (NS) FLAT PACKAGE

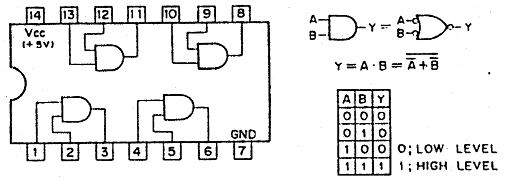
TTL INVERTER
– TOP VIEW –


14
13
12
11
10
9
8
Vcc
(+5V)
GND
1
2
3
4
5
6
7
A
Y = A
Y
Y = $\overline{A}$
0; LOW LEVEL
1; HIGH LEVEL

A	Y
0	1
1	0

74F08SJ (NS) FLAT PACKAGE

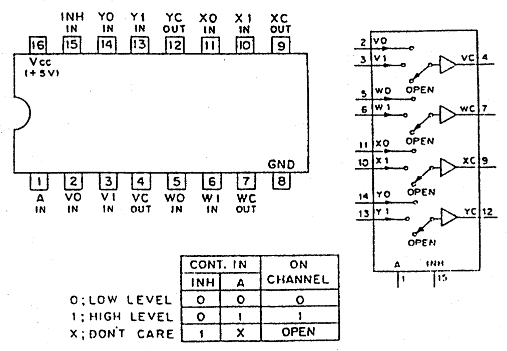
TTL 2-INPUT POSITIVE-AND GATE
– TOP VIEW –


14
13
12
11
10
9
8
Vcc
(+5V)
GND
1
2
3
4
5
6
7
A
B
Y
Y = A · B = $\overline{\overline{A}+\overline{B}}$
0; LOW LEVEL
1; HIGH LEVEL

A	B	Y
0	0	0
0	1	0
1	0	0
1	1	1

74F257ASJ (NS) FLAT PACKAGE

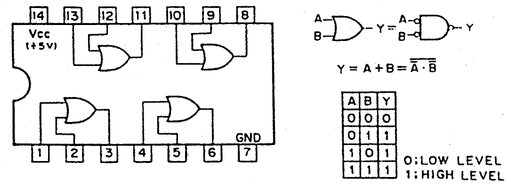
TTL 2-LINE-TO-1-LINE DATA SELECTOR/MULTIPLEXER
– TOP VIEW –


INH IN
Y0 IN
Y1 IN
YC OUT
X0 IN
X1 IN
XC OUT
16
15
14
13
12
11
10
9
Vcc
(+5V)
GND
1
2
3
4
5
6
7
8
A IN
V0 IN
V1 IN
VC OUT
W0 IN
W1 IN
WC OUT
V0
V1
VC
W0
W1
WC
X0
X1
XC
Y0
Y1
YC
OPEN
A
INH
0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE

CONT. IN		ON CHANNEL
INH	A	
0	0	0
0	1	1
1	X	OPEN

74F32SJ (NS) FLAT PACKAGE

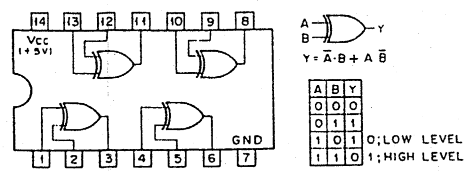
TTL 2-INPUT POSITIVE-OR GATE
– TOP VIEW –


14
13
12
11
10
9
8
Vcc
(+5V)
GND
1
2
3
4
5
6
7
A
B
Y
Y = A + B = $\overline{\overline{A} \cdot \overline{B}}$
0; LOW LEVEL
1; HIGH LEVEL

A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1

74F86SJ (NS) FLAT PACKAGE

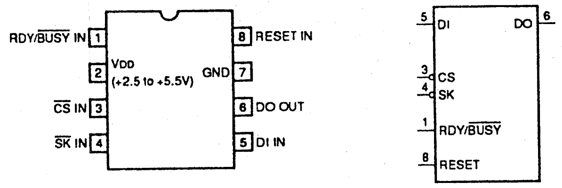
TTL EXCLUSIVE OR GATE
– TOP VIEW –


14
13
12
11
10
9
8
Vcc
(+5V)
GND
1
2
3
4
5
6
7
A
B
Y
Y = $\overline{A} \cdot B + A\,\overline{B}$
0; LOW LEVEL
1; HIGH LEVEL

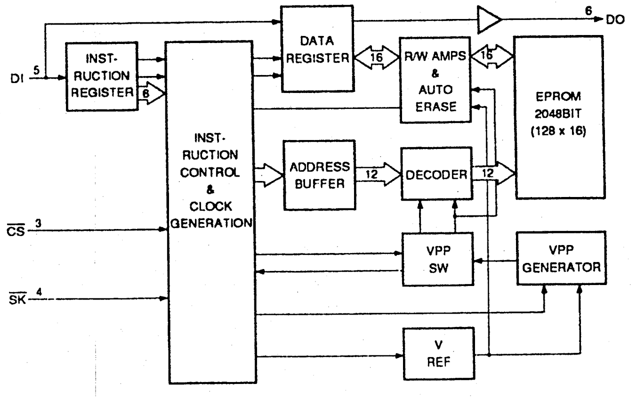
A	B	Y
0	0	0
0	1	1
1	0	1
1	1	0

AK6420F (ASAHIKASEI ELECT) FLAT PACKAGE

C-MOS 2048 (128 x 16) · BIT ERASABLE MEMORY
-TOP VIEW-

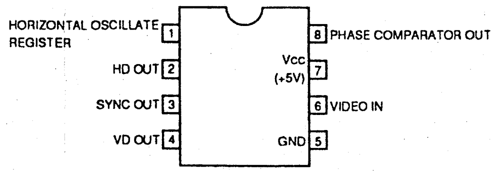

RDY/$\overline{\text{BUSY}}$ IN
1
2
VDD
(+2.5 to +5.5V)
$\overline{\text{CS}}$ IN
3
$\overline{\text{SK}}$ IN
4
8
RESET IN
GND
7
6
DO OUT
5
DI IN
5
DI
DO
6
3
CS
4
SK
1
RDY/$\overline{\text{BUSY}}$
8
RESET

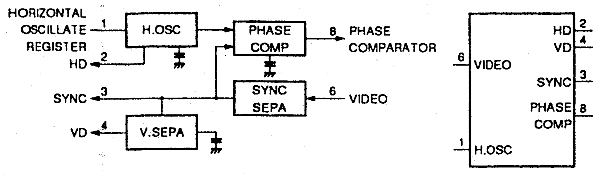
$\overline{\text{CS}}$; CHIP SELECT INPUT
DI ; SERIAL DATA INPUT
DO ; SERIAL DATA OUTPUT
RDY/$\overline{\text{BUSY}}$; READY /$\overline{\text{BUSY}}$ INPUT
RESET ; RESET INPUT
$\overline{\text{SK}}$; SERIAL DATA CLOCK INPUT


6
DO
DI
5
INST-RUCTION REGISTER
6
DATA REGISTER
16
R/W AMPS & AUTO ERASE
16
EPROM 2048BIT (128 x 16)
INST-RUCTION CONTROL & CLOCK GENERATION
ADDRESS BUFFER
12
DECODER
12
$\overline{\text{CS}}$
3
VPP SW
VPP GENERATOR
$\overline{\text{SK}}$
4
V REF

BA7046F (ROHM) FLAT PACKAGE

VIDEO SIGNAL SYNC SEPARATOR &AFC
-TOP VIEW-

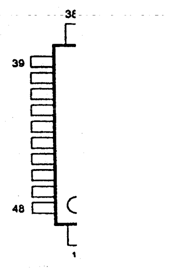

HORIZONTAL OSCILLATE REGISTER
1
HD OUT
2
SYNC OUT
3
VD OUT
4
8
PHASE COMPARATOR OUT
Vcc
(+5V)
7
6
VIDEO IN
GND
5

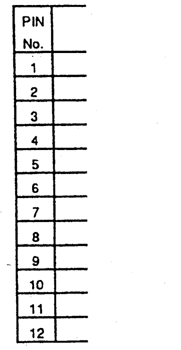

HORIZONTAL OSCILLATE REGISTER
1
H.OSC
HD
2
PHASE COMP
8
PHASE COMPARATOR
SYNC
3
SYNC SEPA
6
VIDEO
VD
4
V.SEPA
6
VIDEO
1
H.OSC
HD
2
VD
4
SYNC
3
PHASE COMP
8

CXA1211
ELECTRO
— TOP \

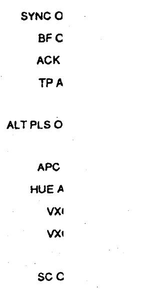
IN1
CONT1
OUT1
IN1

CXA1437
C-MOS A
— TOP




PIN No.
1
2
3
4
5
6
7
8
9
10
11
12

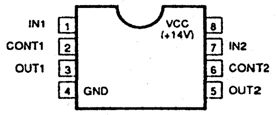
CXA1621
C-MOS N
— TOP

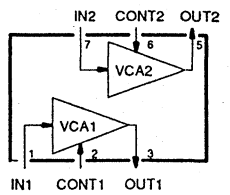

SYNC O
BF C
ACK
TP A
ALT PLS O
APC
HUE A
VX
VX
SC C

CXA1211 (SONY)

ELECTRONIC VOLUME

— TOP VIEW —

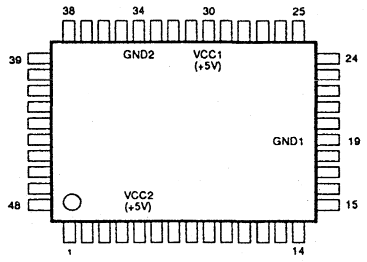

IN1 1
CONT1 2
OUT1 3
4 GND
VCC (+14V) 8
7 IN2
6 CONT2
5 OUT2


IN2
CONT2
OUT2
VCA2
VCA1
IN1
CONT1
OUT1

CXA1437Q (SONY)

C-MOS AGC PULSE GENERATOR

— TOP VIEW —

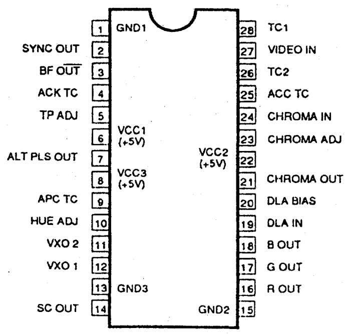

38
34
30
25
39
24
GND2
VCC1 (+5V)
GND1
19
VCC2 (+5V)
48
15
1
14

PIN No.	SIGNAL	PIN No.	SIGNAL	PIN No.	SIGNAL	PIN No.	SIGNAL
1	N.C	13	N.C	25	N.C	37	SYNC SEP TC1
2	N.C	14	N.C	26	N.C	38	N.C
3	HD TC	15	VD OUT	27	N.C	39	SYNC SEP TC2
4	HD OUT	16	ID OUT	28	SW OUT	40	L; C.SYNC OUT
5	VCC2(+5V)	17	ID S/H	29	AGC REF	41	PB/REC IN
6	N.C	18	ID IN	30	VCC1(+5V)	42	FSC IN
7	I REF	19	GND1	31	REC Y IN	43	N.C
8	VD TC	20	AGC OUT	32	PEAK AGC HOLD	44	N.C
9	BFP OUT	21	AGC DET IN	33	N.C	45	NTSC/PAL IN
10	BFP TC	22	N.C	34	GND2	46	N.C
11	N.C	23	SYNC AGC HOLD	35	PB Y IN	47	L.ALT OUT
12	N.C	24	N.C	36		48	BLK OUT

CXA1621S (SONY)

C-MOS NTSC/PAL DECODER

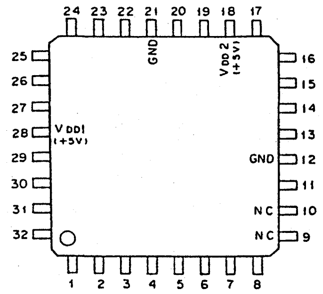
— TOP VIEW —

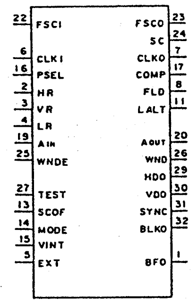

1 GND1
SYNC OUT 2
BF OUT 3
ACK TC 4
TP ADJ 5
6 VCC1 (+5V)
ALT PLS OUT 7
8 VCC3 (+5V)
APC TC 9
HUE ADJ 10
VXO 2 11
VXO 1 12
13 GND3
SC OUT 14
28 TC1
27 VIDEO IN
26 TC2
25 ACC TC
24 CHROMA IN
23 CHROMA ADJ
VCC2 (+5V) 22
21 CHROMA OUT
20 DLA BIAS
19 DLA IN
18 B OUT
17 G OUT
16 R OUT
GND2 15

CXD1159Q (SONY)

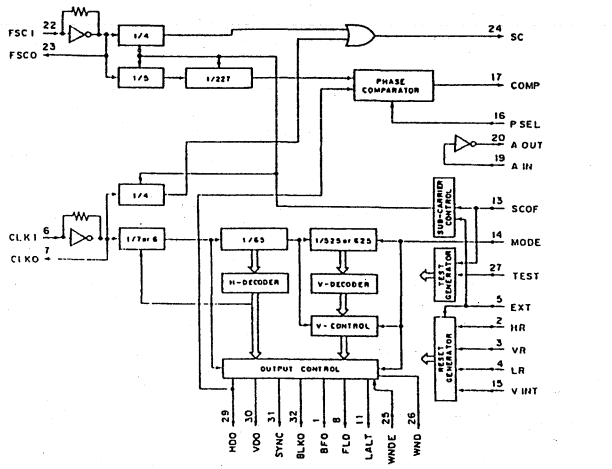
C-MOS SYNC GENERATOR

– TOP VIEW –


24 23 22 21 20 19 18 17
GND
VDD2 (+5V)
16
15
14
13
12
11
10
9
25
26
27
28
29
30
31
32
VDD1 (+5V)
GND
NC
NC
1 2 3 4 5 6 7 8


22 FSCI
6 CLKI
16 PSEL
2 HR
3 VR
4 LR
19 AIN
25 WNDE
27 TEST
13 SCOF
14 MODE
15 VINT
5 EXT
FSCO 23
SC 24
CLKO 7
COMP 17
FLD 8
LALT 11
AOUT 20
WND 26
HDO 29
VDO 30
SYNC 31
BLKO 32
BFO 1

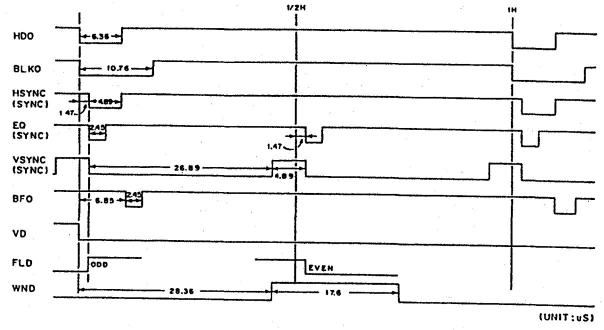
PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL
1	O	BFO	9	–	NC	17	O	COMP	25	I	WNDE
2	I	HR	10	–	NC	18	–	VDD2(+5V)	26	O	WND
3	I	VR	11	O	LALT	19	I	AIN	27	I	TEST
4	I	LR	12	–	GND	20	O	AOUT	28	–	VDD1(+5V)
5	I	EXT	13	I	SCOF	21	–	GND	29	O	HDO
6	I	CLKI	14	I	MODE	22	I	FSCI	30	O	VDO
7	O	CLKO	15	I	VINT	23	O	FSCO	31	O	SYNC
8	O	FLD	16	I	PSEL	24	O	SC	32	O	BLKO


FSCI 22
FSCO 23
1/4
1/5
1/227
24 SC
PHASE COMPARATOR
17 COMP
16 PSEL
20 A OUT
19 A IN
1/4
SUB-CARRIER CONTROL
13 SCOF
CLKI 6
CLKO 7
1/7or6
1/65
1/525or625
H-DECODER
V-DECODER
V-CONTROL
14 MODE
TEST GENERATOR
27 TEST
5 EXT
2 HR
RESET GENERATOR
3 VR
4 LR
15 V INT
OUTPUT CONTROL
29 HDO
30 VDO
31 SYNC
32 BLKO
1 BFO
8 FLD
11 LALT
25 WNDE
26 WND

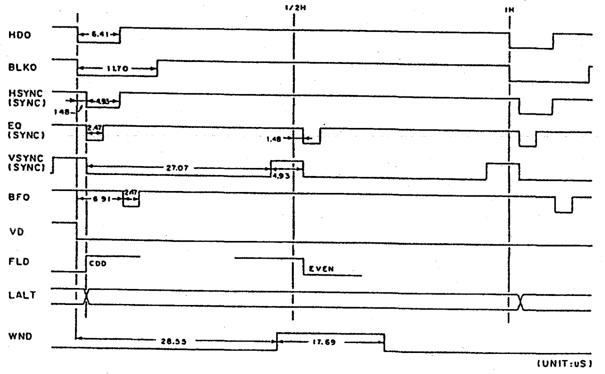
INPUT
AIN : FILTER INVERTER INPUT
CLKI : CLOCK INPUT
(NTSC ; 14.31818MHz
/PAL ; 14.1875MHz)
EXT : INT/EXT (L ; INT)
FSCI : 4FSC CLOCK INPUT
HR : H RESET
LR : LALT RESET
MODE : NTSC/PAL (L ; NTSC)
PSEL : POLARITY SELECT FOR PHASE COMP
SCOF : SUBCARRIER OFF (L ; OFF)
TEST : TEST INPUT
VINT : INITIALIZE
VR : V RESET
WNDE : WINDOW ENABLE

OUTPUT
AOUT : FILTER INVERTER OUTPUT
BFO : BURST FLAG PULSE
BLKO : COMPOSITE BLANKING PULSE
CLKO : CLOCK OUTPUT
COMP : PHASE COMP
FLD : FIELD PULSE
FSCO : 4FSC CLOCK OUTPUT
HDO : H DRIVE PULSE
LALT : LINE ALTERNATE PULSE
SC : SUBCARRIER
SYNC : COMPOSITE SYNC PULSE
VDO : V DRIVE PULSE
WND : WINDOW

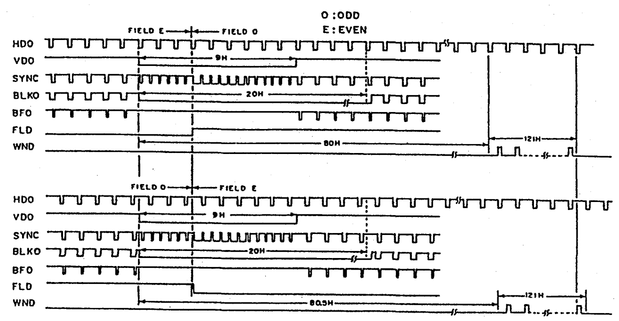
TIMING CHART H (NTSC)



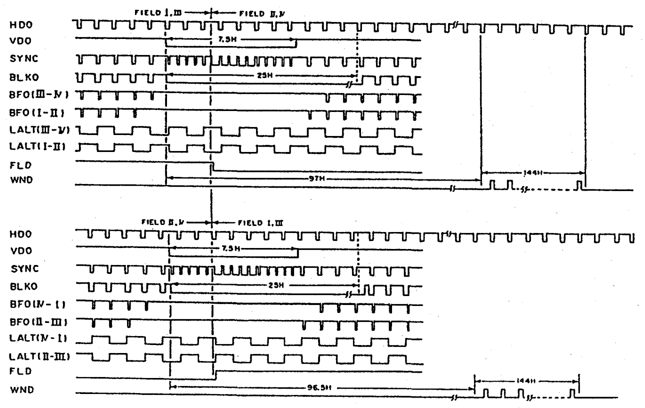
TIMING CHART H (PAL)



TIMING CHART V (NTSC)



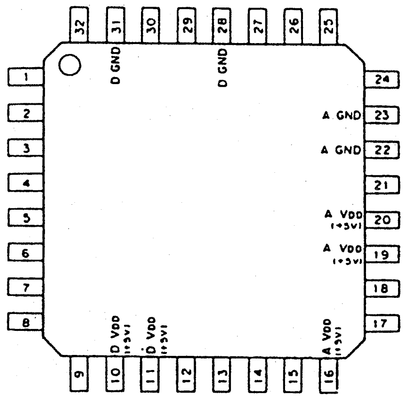
TIMING CHART V (PAL)

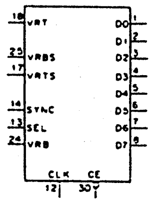


CXD1176Q (SONY)

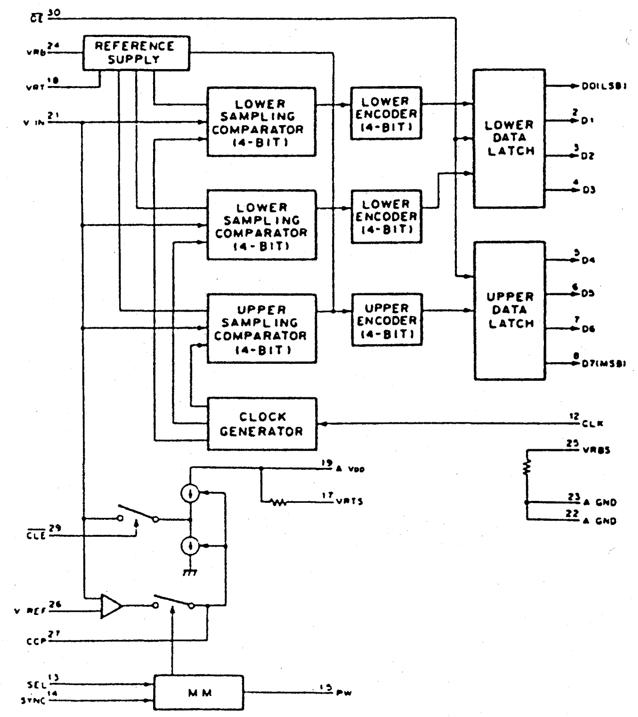
C-MOS 8-BIT 20MSPS VIDEO A/D CONVERTER WITH CLAMP FUNCTION

– TOP VIEW –


32 31 30 29 28 27 26 25
D GND
D GND
1
2
3
4
5
6
7
8
24
A GND 23
A GND 22
21
A VDD (+5V) 20
A VDD (+5V) 19
18
17
D VDD (+5V)
D VDD (+5V)
A VDD (+5V)
9 10 11 12 13 14 15 16

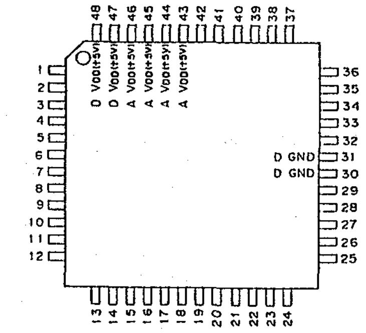

18 VRT
25 VRBS
17 VRTS
14 SYNC
13 SEL
24 VRB
CLK 12
CE 30
D0 1
D1 2
D2 3
D3 4
D4 5
D5 6
D6 7
D7 8

No.	I/O	SIGNAL	No.	I/O	SIGNAL	No.	I/O	SIGNAL	No.	I/O	SIGNAL
1	O	D0(LSB)	9	–	N.C	17	O	VRTS	25	O	VRBS
2	O	D1	10	–	D VDD	18	O	VRT	26	I	VREF
3	O	D2	11	–	D VDD	19	–	A VDD	27	I/O	CCP
4	O	D3	12	I	CLK	20	–	A VDD	28	–	D GND
5	O	D4	13	I	SEL	21	I	V IN	29	I	CLE
6	O	D5	14	I	SYNC	22	–	A GND	30	O	OE
7	O	D6	15	I/O	PW	23	–	A GND	31	–	D GND
8	O	D7(MSB)	16	–	A VDD	24	O	VRB	32	–	N.C.

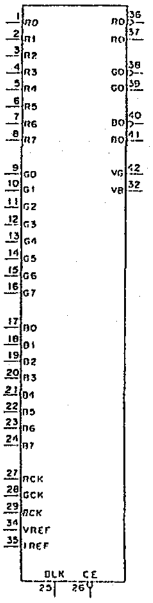

CE 30
VRB 24
VRT 18
V IN 21
REFERENCE SUPPLY
LOWER SAMPLING COMPARATOR (4-BIT)
LOWER ENCODER (4-BIT)
LOWER SAMPLING COMPARATOR (4-BIT)
LOWER ENCODER (4-BIT)
LOWER DATA LATCH
UPPER SAMPLING COMPARATOR (4-BIT)
UPPER ENCODER (4-BIT)
UPPER DATA LATCH
CLOCK GENERATOR
1 D0(LSB)
2 D1
3 D2
4 D3
5 D4
6 D5
7 D6
8 D7(MSB)
12 CLK
25 VRBS
19 A VDD
17 VRTS
23 A GND
22 A GND
CLE 29
V REF 26
CCP 27
SEL 13
SYNC 14
MM
15 PW

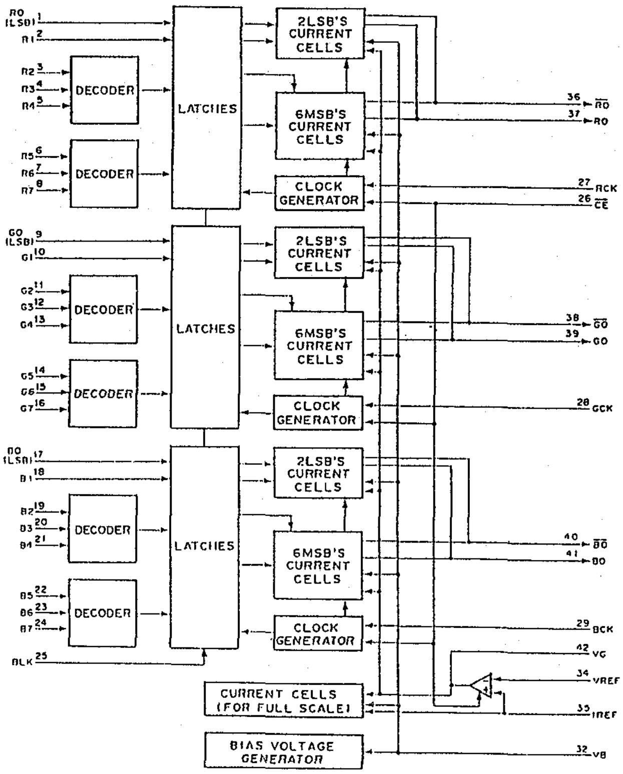
CXD1178Q (SONY) FLAT PACKAGE

C-MOS 3CH 8-BIT 40MHz D/A CONVERTER
– TOP VIEW –


D VDD(+5V)
D VDD(+5V)
A VDD(+5V)
A VDD(+5V)
A VDD(+5V)
A VDD(+5V)
D GND
D GND

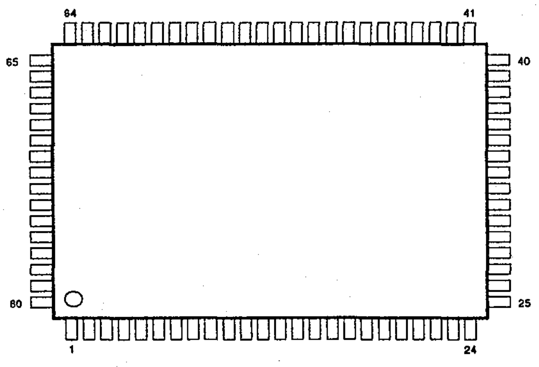
No.	I/O	SIGNAL	No.	I/O	SIGNAL	No.	I/O	SIGNAL	No.	I/O	SIGNAL
1	I	R0(LSB)	13	I	G4	25	I	BLK	37	O	RO
2	I	R1	14	I	G5	26	I	CE	38	O	GO
3	I	R2	15	I	G6	27	I	RCK	39	O	GO
4	I	R3	16	I	G7	28	I	GCK	40	O	BO
5	I	R4	17	I	B0(LSB)	29	I	BCK	41	O	BO
6	I	R5	18	I	B1	30	–	D GND	42	I	VG
7	I	R6	19	I	B2	31	–	D GND	43	–	A V_{DD}
8	I	R7	20	I	B3	32	I	VB	44	–	A V_{DD}
9	I	G0(LSB)	21	I	B4	33	–	A GND	45	–	A V_{DD}
10	I	G1	22	I	B5	34	I	VREF	46	–	A V_{DD}
11	I	G2	23	I	B6	35	I	IREF	47	–	A V_{DD}
12	I	G3	24	I	B7	36	O	RO	48	–	A V_{DD}

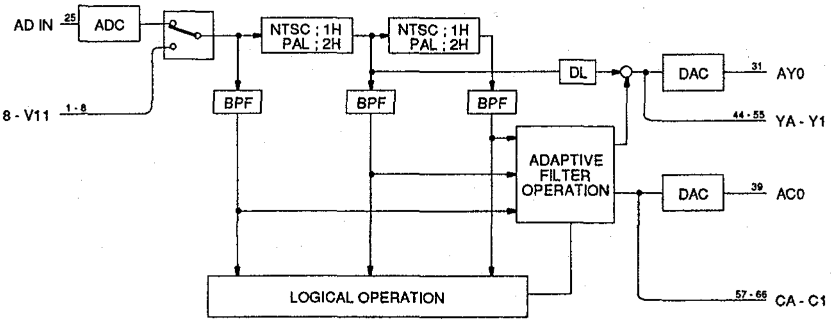

R0
R1
R2
R3
R4
R5
R6
R7
G0
G1
G2
G3
G4
G5
G6
G7
B0
B1
B2
B3
B4
B5
B6
B7
RCK
GCK
BCK
VREF
IREF
RO
RO
GO
GO
BO
BO
VG
VB
BLK
CE


R0 (LSB)
R1
R2
R3
R4
R5
R6
R7
DECODER
LATCHES
2LSB'S CURRENT CELLS
6MSB'S CURRENT CELLS
CLOCK GENERATOR
G0 (LSB)
G1
G2
G3
G4
G5
G6
G7
B0 (LSB)
B1
B2
B3
B4
B5
B6
B7
BLK
CURRENT CELLS (FOR FULL SCALE)
BIAS VOLTAGE GENERATOR
RO
RO
RCK
CE
GO
GO
GCK
BO
BO
BCK
VG
VREF
IREF
VB

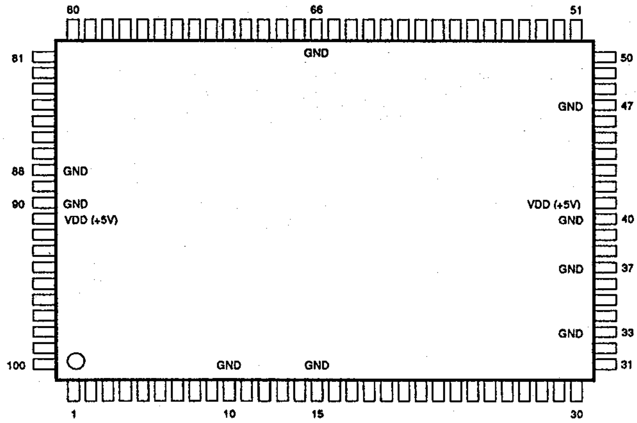
CXD2024Q (SONY)

C-MOS DIGITAL COMB FILTER (NTSC/PAL)
— TOP VIEW —


64
41
65
40
80
25
1
24


AD IN
25
ADC
V18 - V11
1 - 8
NTSC ; 1H
PAL ; 2H
NTSC ; 1H
PAL ; 2H
BPF
BPF
BPF
DL
DAC
31
AY0
44 - 55
YA - Y1
ADAPTIVE FILTER OPERATION
DAC
39
AC0
LOGICAL OPERATION
57 - 66
CA - C1

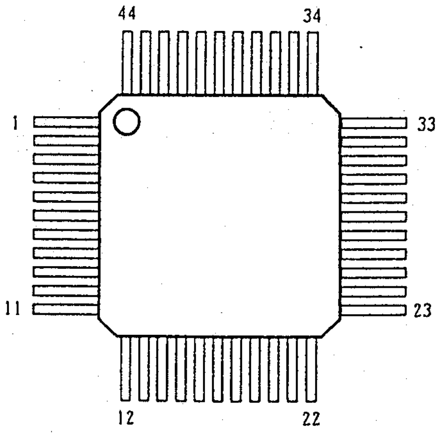
CXD8391Q (SONY)
C-MOS GATE ARRAY
— TOP VIEW —



PIN No.	SIGNAL	PIN No.	SIGNAL	PIN No.	SIGNAL	PIN No.	SIGNAL
1	P47	26	P21	51	A20	76	D07
2	P46	27	P20	52	A19	77	D06
3	P45	28	P17	53	CS0	78	D05
4	P44	29	P16	54	CS1	79	D04
5	P43	30	P15	55	CS2	80	D03
6	P42	31	P14	56	A18	81	D02
7	P41	32	P13	57	A17	82	D01
8	P40	33	GND	58	A16	83	D00
9	WRP	34	RAS	59	A15	84	RES
10	GND	35	RC	60	A14	85	WR
11	P37	36	CAS	61	A13	86	DRQ2
12	P36	37	GND	62	A12	87	DRQ1
13	P35	38	DBRQ	63	A11	88	GND
14	P34	39	ABRQ	64	A10	89	CK
15	GND	40	GND	65	A09	90	GND
16	P33	41	VDD (+5V)	66	GND	91	VDD (+5V)
17	P32	42	PWR	67	A08	92	WRC
18	P31	43	BPWR	68	A07	93	P57
19	P30	44	P12	69	A06	94	P56
20	P27	45	P11	70	A05	95	P55
21	P26	46	P10	71	A04	96	P54
22	P25	47	GND	72	A03	97	P53
23	P24	48	A23	73	A02	98	P52
24	P23	49	A22	74	A01	99	P51
25	P22	50	A21	75	A00	100	P50

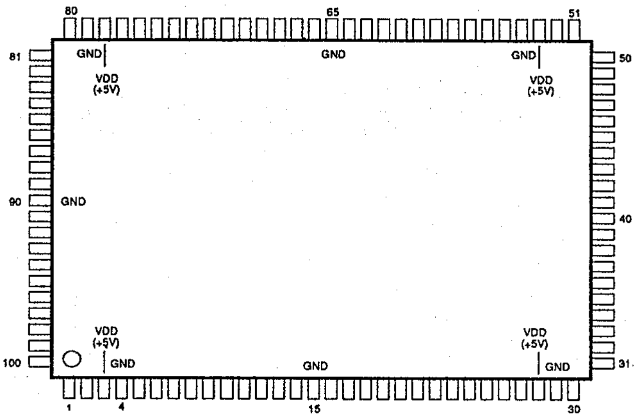
CXD8398Q (SONY)
C-MOS KEYBOARD CONTROLER

— TOP VIEW —



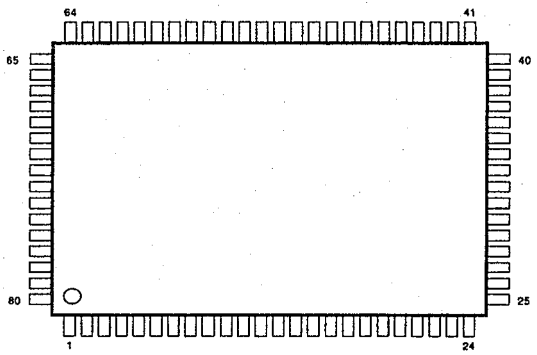
Pin No.	I/O	Pin Name	Pin No.	I/O	Pin Name
1	I	GIN5/DATKY	23	O	OUT0/STBVA
2	I	GIN6/STBPD	24	O	OUT1/CLKVA
3	I	GIN7/STBKY	25	O	OUT2/BSYKY
4	I	BIN0/CLKPD	26	O	OUT3/BSYPD
5	I	BIN1/CLKKY	27	O	OUT4/SYEKY
6	I	BIN2/BSYVA	28	O	OUT5/SYEPD
7	I	BIN3/SYESY	29	O	OUT6/RXDKY
8	I	BIN4/RXDSY	30	O	OUT7/RXDPD
9	I	BIN5/LOW	31	I	RIN0/LOW
10	I	BIN6/LOW	32	I	RIN1/LOW
11	I	BIN7/LOW	33	I	RIN2/LOW
12	I	COLA/RESET	34	I	RIN3/LOW
13	I	COLB/LOW	35	I	RIN4/LOW
14	-	N.C.	36	I	RIN5/LOW
15	I	INVI/PADKY	37	I	RIN6/LOW
16	I	SELECT	38	I	RIN7/LOW
17	-	GND	39	-	VDD
18	O	TP0/KYESY	40	I	GIN0/KYEPD
19	O	TP1/TXDSY	41	I	GIN1/KYEKY
20	O	TP2/DATVA	42	I	GIN2/TXDPD
21	-	N.C.	43	I	GIN3/TXDKY
22	I	OE/HIGH	44	I	GIN4/DATPD

CXD8444Q (SONY)
C-MOS GATE ARRAY
— TOP VIEW —

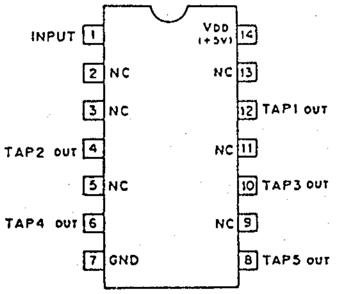

80
65
51
81
50
GND
GND
GND
VDD (+5V)
VDD (+5V)
90
GND
40
VDD (+5V)
VDD (+5V)
100
GND
GND
GND
31
1
4
15
30

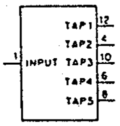
PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	I	TRIM	26	O	RO2	51	O	BO2	76	I	ADON
2	I	CAPEN	27	O	RO3	52	O	BO3	77	O	ADOE
3	-	VDD (+5V)	28	-	VDD (+5V)	53	-	VDD (+5V)	78	-	VDD (+5V)
4	-	VSS	29	-	VSS	54	-	VSS	79	-	VSS
5	I/O	DBUS7	30	O	RO4	55	O	BO4	80	I	CLR
6	I/O	DBUS6	31	O	RO5	56	O	BO5	81	-	N.C
7	I/O	DBUS5	32	O	RO6	57	O	BO6	82	I/O	GBUS6
8	I/O	DBUS4	33	O	RO7	58	O	BO7	83	I/O	GBUS7
9	I/O	DBUS3	34	I	Y3A	59	I/O	BBUS0	84	I/O	RBUS0
10	I/O	DBUS2	35	I	Y3B	60	I/O	BBUS1	85	I/O	RBUS1
11	I/O	DBUS1	36	O	GO0	61	I/O	BBUS2	86	I	BXW
12	I/O	DBUS0	37	O	GO1	62	I/O	BBUS3	87	I	CLKA
13	O	XWRPD	38	O	GO2	63	O	ACK	88	I	OE1
14	O	WRPD	39	O	GO3	64	O	SO	89	I	CLK
15	-	VSS	40	-	VSS	65	-	VSS	90	-	VSS
16	O	BLK	41	O	GO4	66	I/O	BBUS4	91	O	STDCLK
17	I	STD	42	O	GO5	67	I/O	BBUS5	92	I	OE2
18	I	CLKSEL	43	O	GO6	68	I/O	BBUS6	93	I	CLKB
19	I	DAON	44	O	GO7	69	I/O	BBUS7	94	I	OE3
20	I	WRP	45	I	SCK	70	I/O	GBUS0	95	I/O	RBUS2
21	I	COLA	46	I	VD	71	I/O	GBUS1	96	I/O	RBUS3
22	I	COLB	47	I	SI	72	I/O	GBUS2	97	I/O	RBUS4
23	I	POFF	48	I	CS	73	I/O	GBUS3	98	I/O	RBUS5
24	O	RO0	49	O	BO0	74	I/O	GBUS4	99	I/O	RBUS6
25	O	RO1	50	O	BO1	75	I/O	GBUS5	100	I/O	RBUS7

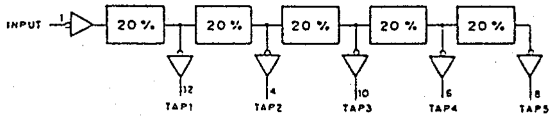
CXP80P116Q-1
CXP80P116Q-1-240
C-MOS 8-BIT MICRO PROCESSING UNIT
— TOP VIEW —


64
41
65
40
80
25
1
24

DS1000S-50 (DALLAS SEMICONDUCTOR)(DELAY TIME=50 nS)
C-MOS DELAY LINE
— TOP VIEW —

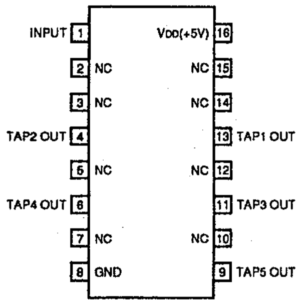

INPUT 1
2 NC
3 NC
TAP2 OUT 4
5 NC
TAP4 OUT 6
7 GND
VDD (+5V) 14
NC 13
12 TAP1 OUT
NC 11
10 TAP3 OUT
NC 9
8 TAP5 OUT

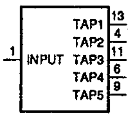

1
INPUT
TAP1 12
TAP2 4
TAP3 10
TAP4 6
TAP5 8

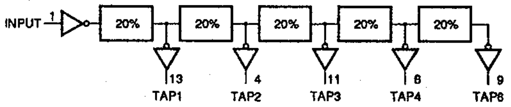

INPUT 1
20 %
20 %
20 %
20 %
20 %
12 TAP1
4 TAP2
10 TAP3
6 TAP4
8 TAP5

TYPE. NO.	DELAY TIME (ns)				
	TAP1	TAP2	TAP3	TAP4	TAP5
DS1000-50	10	20	30	40	50
DS1000-60	12	24	36	48	60
DS1000-75	15	30	45	60	75
DS1000-100	20	40	60	80	100
DS1000-125	25	50	75	100	125
DS1000-150	30	60	90	120	150
DS1000-175	35	70	105	140	175
DS1000-200	40	80	120	160	200
DS1000-250	50	100	150	200	250
DS1000-500	100	200	300	400	500

DS1000S-75 (DALLAS SEMICONDUCTOR)(DELAY TIME=75 nS)
C-MOS DELAY LINE
-TOP VIEW-


INPUT 1
2 NC
3 NC
TAP2 OUT 4
6 NC
TAP4 OUT 6
7 NC
8 GND
VDD(+5V) 16
NC 15
NC 14
13 TAP1 OUT
NC 12
11 TAP3 OUT
NC 10
9 TAP5 OUT

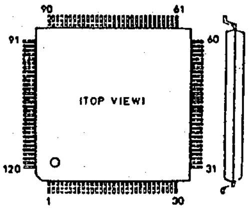

1
INPUT
TAP1 13
TAP2 4
TAP3 11
TAP4 6
TAP5 9


INPUT 1
20%
20%
20%
20%
20%
13 TAP1
4 TAP2
11 TAP3
6 TAP4
9 TAP5

DELAY TIME (nS)				
TAP1	TAP2	TAP3	TAP4	TAP5
15	30	45	60	75

HDC443V2 (HITACHI)

– TOP VIEW –

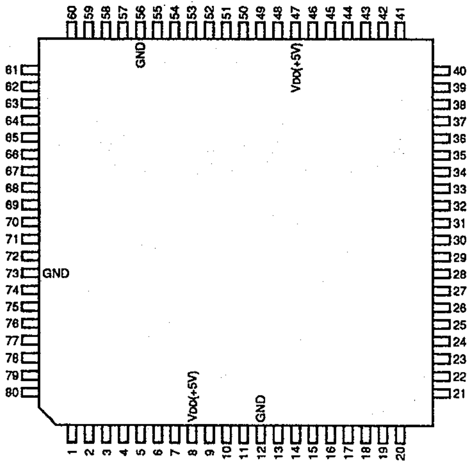

90
61
91
60
(TOP VIEW)
120
31
1
30

No.	I/O	Name	No.	I/O	Name	No.	I/O	Name	No.	I/O	Name
1	-	VDD	31	-	GND	61	-	VDD	91	-	GND
2	O	DTT0	32	O	DTE	62	I/O	DAA	92	I	WR
3	O	DTT1	33	I	DCK	63	I/O	DA9	93	I	DDD0
4	O	DTT2	34	I	TMGP	64	I/O	DA8	94	I	DDD1
5	O	DTT3	35	I	PRIN	65	O	CHOO	95	I	DDD2
6	O	DTT4	36	I	PRNS	66	O	AFOO	96	I	DDD3
7	O	DTT5	37	I	RESE	67	O	AAAB	97	I	DDD4
8	O	DTT6	38	I	LI7	68	O	ABBB	98	I	DDD5
9	O	DTT7	39	I	LI6	69	I	TSA	99	I	DDD6
10	O	DTT8	40	I	LI5	70	I	TSB	100	I	DDD7
11	O	DTT9	41	I	LI4	71	I	RWA	101	I	A0A
12	O	DTTA	42	I	LI3	72	I	RWB	102	I	A1A
13	I	TI07	43	I	LI2	73	I	RWC	103	I	A2A
14	O	TO04	44	I	LI1	74	I	LG	104	I	A3A
15	-	GND	45	I	LI0	75	-	GND	105	I	CS2
16	O	HDC	46	I/O	DA7	76	I/O	AD0	106	I	CS1
17	O	ST0B	47	I/O	DA6	77	I/O	AD1	107	I	CS0
18	O	DATA	48	I/O	DA5	78	I/O	AD2	108	O	TO02
19	O	DATB	49	I/O	DA4	79	I/O	AD3	109	I	TI03
20	O	DRV	50	I/O	DA3	80	I/O	AD4	110	I	TI04
21	I	TI08	51	I/O	DA2	81	I/O	AD5	111	O	TO03
22	O	TO05	52	I/O	DA1	82	I/O	AD6	112	I	TI05
23	O	TO01	53	I/O	DA0	83	I/O	AD7	113	I	TI06
24	I	TI01	54	I/O	DAF	84	I/O	AD8	114	I	TSNR
25	I	TI02	55	I/O	DAE	85	I/O	AD9	115	I	TWEB
26	O	TO06	56	I/O	DAD	86	I/O	ADA	116	I	TTOE
27	I	TI10	57	I/O	DAC	87	O	OPTW	117	I.	TTCS
28	I	TI11	58	I/O	DAB	88	O	OPTO	118	I	CLOK
29	I	TI09	59	I	IOEN	89	I	0LD	119	O	OSO
30	-	VDD	60	-	GND	90	-	VDD	120	-	GND

HD6413378F10 (HITACHI) FLAT PACKAGE

C-MOS 8-BIT 1CHIP CPU (ROM LESS)

-TOP VIEW-


60 59 58 57 56 55 54 53 52 51 50 49 48 47 46 45 44 43 42 41
GND
VDD(+5V)
61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80
GND
40 39 38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21
VDD(+5V)
GND
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

(VDD = +5V)

PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	I	$\overline{\text{RES}}$	21	I/O	P60/FTCI	41	I/O	P42/TMRI0	61	I/O	P13/A3
2	I	XTAL	22	I/O	P61/FTOA	42	I/O	P43/TMCI1	62	I/O	P12/A2
3	I	EXTAL	23	I/O	P62/FTIA	43	I/O	P44/TMO1	63	I/O	P11/A1
4	I	MD1	24	I/O	P63/FTIB	44	I/O	P45/TMRI1	64	I/O	P10/A0
5	I	MD0	25	I/O	P64/FTIC	45	I/O	P46/PW0	65	I/O	P30/D0
6	I	$\overline{\text{NMI}}$	26	I/O	P65/FTID	46	I/O	P47/PW1	66	I/O	P31/D1
7	I	$\overline{\text{STBY}}$	27	I/O	P66/FTOB/$\overline{\text{IRQ6}}$	47	—	VDD	67	I/O	P32/D2
8	—	VDD	28	I/O	P67/$\overline{\text{IRQ7}}$	48	I/O	P27/A15	68	I/O	P33/D3
9	I/O	P52/SCK0	29	I	AVDD	49	I/O	P26/A14	69	I/O	P34/D4
10	I/O	P51/RXD0	30	I	P70/AN0	50	I/O	P25/A13	70	I/O	P35/D5
11	I/O	P50/TXD0	31	I	P71/AN1	51	I/O	P24/A12	71	I/O	P36/D6
12	—	GND	32	I	P72/AN2	52	I/O	P23/A11	72	I/O	P37/D7
13	I/O	P97/$\overline{\text{WAIT}}$	33	I	P73/AN3	53	I/O	P22/A10	73	—	GND
14	I/O	P96/ϕ	34	I	P74/AN4	54	I/O	P21/A9	74	I/O	P80
15	I/O	P95/$\overline{\text{AS}}$	35	I	P75/AN5	55	I/O	P20/A8	75	I/O	P81
16	I/O	P94/$\overline{\text{WR}}$	36	I/O	P76/AN6/DA0	56	—	GND	76	I/O	P82
17	I/O	P93/$\overline{\text{RD}}$	37	I/O	P77/AN7/DA1	57	I/O	P17/A7	77	I/O	P83
18	I/O	P92/$\overline{\text{IRQ0}}$	38	I	AGND	58	I/O	P16/A6	78	I/O	P84/TXD1/$\overline{\text{IRQ3}}$
19	I/O	P91/$\overline{\text{IRQ1}}$	39	I/O	P40/TMCI0	59	I/O	P15/A5	79	I/O	P85/RXD1/$\overline{\text{IRQ4}}$
20	I/O	P90/$\overline{\text{IRQ2}}$/$\overline{\text{ADTRG}}$	40	I/O	P41/TMO0	60	I/O	P14/A4	80	I/O	P86/SCK1/$\overline{\text{IRQ5}}$

INPUT

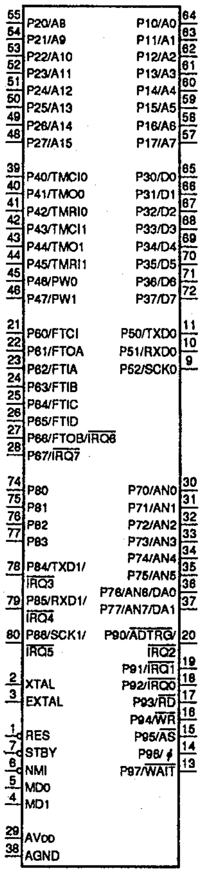
ADTRG ; TRIGGER FOR A/D CONVERTER
AGND ; GND FOR A/D CONVERTER
AN0-AN7 ; ANALOG
AVDD ; REFERENCE VOLTAGE FOR A/D CONVERTER
EXTAL ; CRYSTAL OSCILLATOR & EXTERNAL CLOCK (ϕ CLOCK x 2)
FTCI ; FRT COUNTER CLOCK
FTIA-FTID ; FRT INPUT CAPTURE
IRQ0-IRQ7 ; INTERRUPT REQUEST
MD0,MD1 ; MODE SETTING
$\overline{\text{NMI}}$; NON-MASKABLE INTERRUPT
P70-P77 ; PORT 7
$\overline{\text{RES}}$; RESET
RXD0,RXD1 ; RECEIVE DATA
SCK0,SCK1 ; SERIAL CLOCK
$\overline{\text{STBY}}$; STANDBY
TMCI0,TMCI1 ; 8-BIT TIMER CLOCK
TMRI0,TMRI1 ; 8-BIT TIMER COUNTER RESET
$\overline{\text{WAIT}}$; WAIT
XTAL ; CRYSTAL OSOILLATOR (ϕ CLOCK x 2)

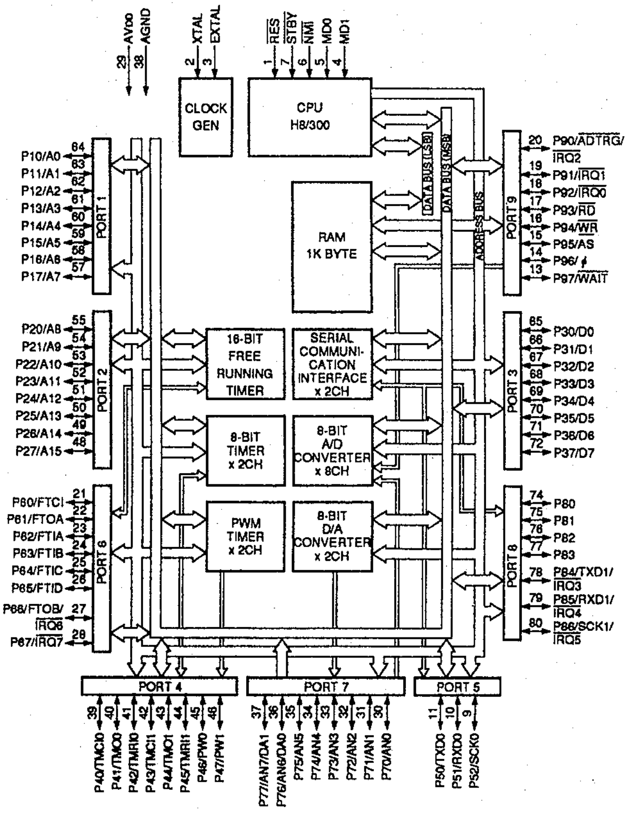
OUTPUT

ϕ ; SYSTEM CLOCK
A0-A15 ; ADDRESS BUS
$\overline{\text{AS}}$; ADDRESS STROBE
DA0,DA1 ; D/A CONVERTE DATA
FTOA,FTOB ; FRT OUTPUT COMPEA
PW0,PW1 ; PWM TIME
$\overline{\text{RD}}$; READ
TMO0,TMO1 ; 8-BIT TIMER
TXD0,TXD1 ; TRANSCEIVE DATA
$\overline{\text{WR}}$; WRITE

INPUT/OUTPUT

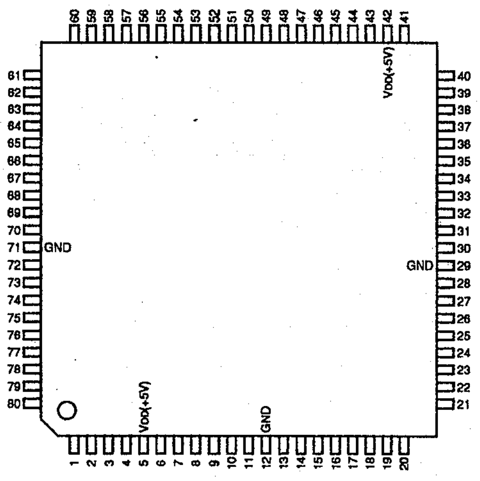
D0-D7 ; DATA BUS
P10-P17 ; PORT 1
P20-P27 ; PORT 2
P30-P37 ; PORT 3
P40-P47 ; PORT 4
P50-P52 ; PORT 5
P60-P67 ; PORT 6
P80-P86 ; PORT 8
P90-P97 ; PORT 9


55 P20/A8
54 P21/A9
53 P22/A10
52 P23/A11
51 P24/A12
50 P25/A13
49 P26/A14
48 P27/A15
39 P40/TMCI0
40 P41/TMO0
41 P42/TMRI0
42 P43/TMCI1
43 P44/TMO1
44 P45/TMRI1
45 P46/PW0
46 P47/PW1
21 P60/FTCI
22 P61/FTOA
23 P62/FTIA
24 P63/FTIB
25 P64/FTIC
26 P65/FTID
27 P66/FTOB/IRQ6
28 P67/IRQ7
74 P80
75 P81
76 P82
77 P83
78 P84/TXD1/IRQ3
79 P85/RXD1/IRQ4
80 P86/SCK1/IRQ5
2 XTAL
3 EXTAL
1 RES
7 STBY
6 NMI
5 MD0
4 MD1
29 AVDD
38 AGND
P10/A0 64
P11/A1 63
P12/A2 62
P13/A3 61
P14/A4 60
P15/A5 59
P16/A6 58
P17/A7 57
P30/D0 65
P31/D1 66
P32/D2 67
P33/D3 68
P34/D4 69
P35/D5 70
P36/D6 71
P37/D7 72
P50/TXD0 11
P51/RXD0 10
P52/SCK0 9
P70/AN0 30
P71/AN1 31
P72/AN2 32
P73/AN3 33
P74/AN4 34
P75/AN5 35
P76/AN6/DA0 36
P77/AN7/DA1 37
P90/ADTRG/IRQ2 20
P91/IRQ1 19
P92/IRQ0 18
P93/RD 17
P94/WR 16
P95/AS 15
P96/ϕ 14
P97/WAIT 13


29 AVDD
38 AGND
2 XTAL
3 EXTAL
1 RES
7 STBY
6 NMI
5 MD0
4 MD1
CLOCK GEN
CPU H8/300
RAM 1K BYTE
DATA BUS (LSB)
DATA BUS (MSB)
ADDRESS BUS
16-BIT FREE RUNNING TIMER
SERIAL COMMUNI-CATION INTERFACE x 2CH
8-BIT TIMER x 2CH
8-BIT A/D CONVERTER x 8CH
PWM TIMER x 2CH
8-BIT D/A CONVERTER x 2CH
PORT 1
PORT 2
PORT 6
PORT 9
PORT 3
PORT 8
PORT 4
PORT 7
PORT 5
P10/A0 64
P11/A1 63
P12/A2 62
P13/A3 61
P14/A4 60
P15/A5 59
P16/A6 58
P17/A7 57
P20/A8 55
P21/A9 54
P22/A10 53
P23/A11 52
P24/A12 51
P25/A13 50
P26/A14 49
P27/A15 48
P60/FTCI 21
P61/FTOA 22
P62/FTIA 23
P63/FTIB 24
P64/FTIC 25
P65/FTID 26
P66/FTOB/IRQ6 27
P67/IRQ7 28
20 P90/ADTRG/IRQ2
19 P91/IRQ1
18 P92/IRQ0
17 P93/RD
16 P94/WR
15 P95/AS
14 P96/ϕ
13 P97/WAIT
65 P30/D0
66 P31/D1
67 P32/D2
68 P33/D3
69 P34/D4
70 P35/D5
71 P36/D6
72 P37/D7
74 P80
75 P81
76 P82
77 P83
78 P84/TXD1/IRQ3
79 P85/RXD1/IRQ4
80 P86/SCK1/IRQ5
39 P40/TMCI0
40 P41/TMO0
41 P42/TMRI0
42 P43/TMCI1
43 P44/TMO1
44 P45/TMRI1
45 P46/PW0
46 P47/PW1
37 P77/AN7/DA1
36 P76/AN6/DA0
35 P75/AN5
34 P74/AN4
33 P73/AN3
32 P72/AN2
31 P71/AN1
30 P70/AN0
11 P50/TXD0
10 P51/RXD0
9 P52/SCK0

HD6475368F-FMY10-01 (HITACHI) FLAT PACKAGE

C-MOS MICRO COMPUTER UNIT
-TOP VIEW-


60 59 58 57 56 55 54 53 52 51 50 49 48 47 46 45 44 43 42 41
VDD(+5V)
61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80
GND
40 39 38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21
GND
VDD(+5V)
GND
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

(VDD = +5V)

PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	I/O	P21/R/$\overline{\text{W}}$	21	I/O	P40/A0	41	I/O	P63/A19	61	I/O	P90/FTOA2
2	I/O	P22/$\overline{\text{DS}}$	22	I/O	P41/A1	42	—	VDD	62	I/O	P91/FTOA3
3	I/O	P23/$\overline{\text{RD}}$	23	I/O	P42/A2	43	I/O	P70/TMC1	63	I/O	P92/PW1
4	I/O	P24/$\overline{\text{WR}}$	24	I/O	P43/A3	44	I/O	P71/FTI1	64	I/O	P93/PW2
5	—	VDD	25	I/O	P44/A4	45	I/O	P72/FTI2	65	I/O	P94/PW3
6	I	MD0	26	I/O	P45/A5	46	I/O	P73/FTI3/TMRI	66	I/O	P95/TXD
7	I	MD1	27	I/O	P46/A6	47	I/O	P74/FTOB1/FTCI1	67	I/O	P96/RXD
8	I	MD2	28	I/O	P47/A7	48	I/O	P75/FTOB2/FTCI2	68	I/O	P97/SCK
9	I	$\overline{\text{STBY}}$	29	—	GND	49	I/O	P76/FTOB3/FTCI3	69	I	EXTAL
10	I	$\overline{\text{RES}}$	30	I/O	P50/A8	50	I/O	P77/FTOA1	70	I	XTAL
11	I	NMI	31	I/O	P51/A9	51	I	AGND	71	—	GND
12	—	GND	32	I/O	P52/A10	52	I	P80/AN0	72	I/O	P10/ϕ
13	I/O	P30/D0	33	I/O	P53/A11	53	I	P81/AN1	73	I/O	P11/E
14	I/O	P31/D1	34	I/O	P54/A12	54	I	P82/AN2	74	I/O	P12/$\overline{\text{BACK}}$
15	I/O	P32/D2	35	I/O	P55/A13	55	I	P83/AN3	75	I/O	P13/$\overline{\text{BREQ}}$
16	I/O	P33/D3	36	I/O	P56/A14	56	I	P84/AN4	76	I/O	P14/$\overline{\text{WAIT}}$
17	I/O	P34/D4	37	I/O	P57/A15	57	I	P85/AN5	77	I/O	P15/$\overline{\text{IRQ0}}$
18	I/O	P35/D5	38	I/O	P60/A16	58	I	P86/AN6	78	I/O	P16/$\overline{\text{IRQ1}}$
19	I/O	P36/D6	39	I/O	P61/A17	59	I	P87/AN7	79	I/O	P17/TMO
20	I/O	P37/D7	40	I/O	P62/A18	60	I	AVDD	80	I/O	P20/$\overline{\text{AS}}$

INPUT

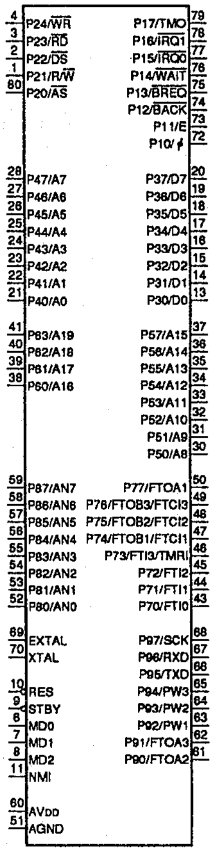
AGND ; GND FOR A/D CONVERTER
AN0-AN7 ; ANALOG
AVDD ; REFERENCE VOLTAGE FOR A/D CONVERTER
$\overline{\text{BREQ}}$; BAS REQUEST
EXTAL ; CRYSTAL OSCILLATOR & EXTERNAL CLOCK (ϕ CLOCK x 2)
FTCI1-FTCI3 ; FRT COUNTER CLOCK
FTI1-FTI3 ; FRT INPUT CAPTURE
$\overline{\text{IRQ0}}$,$\overline{\text{IRQ1}}$; INTERRUPT REQUEST
MD0-MD2 ; MODE SETTING
NMI ; NON-MASKABLE INTERRUPT
P80-P87 ; PORT 8
$\overline{\text{RES}}$; RESET
RXD ; RECEIVE DATA
$\overline{\text{STBY}}$; STANDBY
TMCI ; 8-BIT TIMER CLOCK
TMRI ; 8-BIT TIMER COUNTER RESET
$\overline{\text{WAIT}}$; WAIT
XTAL ; CRYSTAL OSCILLATOR (ϕ CLOCK x 2)

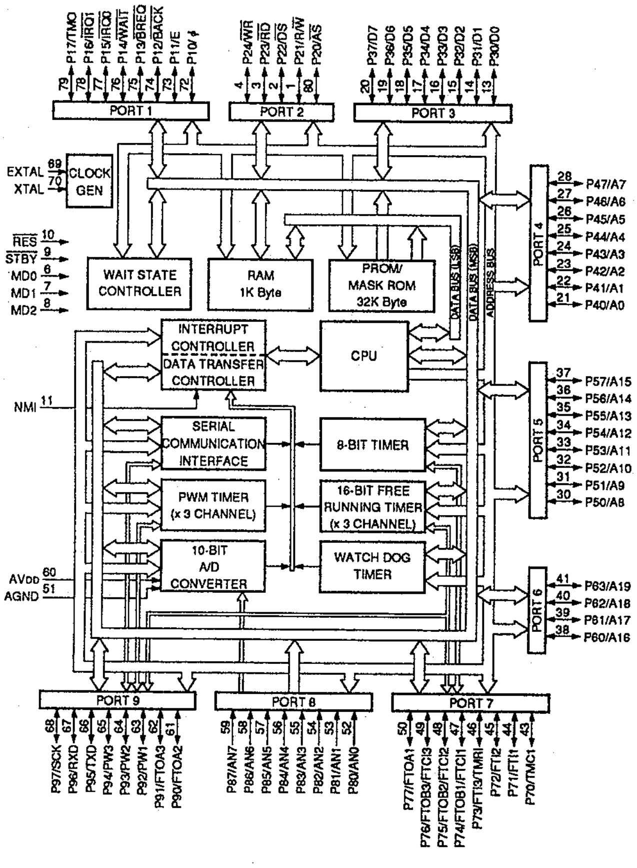
OUTPUT

ϕ ; SYSTEM CLOCK
A0-A19 ; ADDRESS BUS
$\overline{\text{AS}}$; ADDRESS STROBE
$\overline{\text{BACK}}$; BAS REQUEST ACKNOWLEDGE
$\overline{\text{DS}}$; DATA STROBE
E ; ENABLE CLOCK
FTOA1-FTOA3 ; FRT OUTPUT COMPEA A
FTOB1-FTOB3 ; FRT OUTPUT COMPEA B
PW1-PW3 ; PWM TIME
$\overline{\text{RD}}$; READ
R/$\overline{\text{W}}$; READ/$\overline{\text{WRITE}}$
TMO ; 8-BIT TIMER
TXD ; TRANSCEIVE DATA
$\overline{\text{WR}}$; WRITE

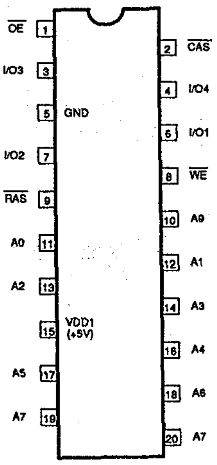
INPUT/OUTPUT

D0-D7 ; DATA BUS
P10-P17 ; PORT 1
P20-P24 ; PORT 2
P30-P37 ; PORT 3
P40-P47 ; PORT 4
P50-P57 ; PORT 5
P60-P63 ; PORT 6
P70-P77 ; PORT 7
P90-P97 ; PORT 9
SCK ; SERIAL CLOCK

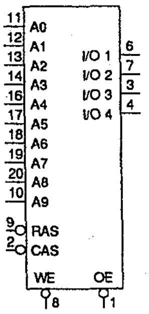

4 P24/WR
3 P23/RD
2 P22/DS
1 P21/R/W
80 P20/AS
P17/TMO 79
P16/IRQ1 78
P15/IRQ0 77
P14/WAIT 76
P13/BREQ 75
P12/BACK 74
P11/E 73
P10/ϕ 72
28 P47/A7
27 P46/A6
26 P45/A5
25 P44/A4
24 P43/A3
23 P42/A2
22 P41/A1
21 P40/A0
P37/D7 20
P36/D6 19
P35/D5 18
P34/D4 17
P33/D3 16
P32/D2 15
P31/D1 14
P30/D0 13
41 P63/A19
40 P62/A18
39 P61/A17
38 P60/A16
P57/A15 37
P56/A14 36
P55/A13 35
P54/A12 34
P53/A11 33
P52/A10 32
P51/A9 31
P50/A8 30
59 P87/AN7
58 P86/AN6
57 P85/AN5
56 P84/AN4
55 P83/AN3
54 P82/AN2
53 P81/AN1
52 P80/AN0
P77/FTOA1 50
P76/FTOB3/FTCI3 49
P75/FTOB2/FTCI2 48
P74/FTOB1/FTCI1 47
P73/FTI3/TMRI 46
P72/FTI2 45
P71/FTI1 44
P70/FTI0 43
69 EXTAL
70 XTAL
P97/SCK 68
P96/RXD 67
P95/TXD 66
P94/PW3 65
P93/PW2 64
P92/PW1 63
P91/FTOA3 62
P90/FTOA2 61
10 RES
9 STBY
6 MD0
7 MD1
8 MD2
11 NMI
60 AVDD
51 AGND


P17/TMO
P16/IRQ1
P15/IRQ0
P14/WAIT
P13/BREQ
P12/BACK
P11/E
P10/ϕ
79 78 77 76 75 74 73 72
PORT 1
P24/WR
P23/RD
P22/DS
P21/R/W
P20/AS
4 3 2 1 80
PORT 2
P37/D7
P36/D6
P35/D5
P34/D4
P33/D3
P32/D2
P31/D1
P30/D0
20 19 18 17 16 15 14 13
PORT 3
EXTAL 69
XTAL 70
CLOCK GEN
BAS REQUEST LINE
RES 10
STBY 9
MD0 6
MD1 7
MD2 8
WAIT STATE CONTROLLER
RAM 1K Byte
PROM/ MASK ROM 32K Byte
DATA BUS (LSB)
DATA BUS (MSB)
ADDRESS BUS
PORT 4
28 P47/A7
27 P46/A6
26 P45/A5
25 P44/A4
24 P43/A3
23 P42/A2
22 P41/A1
21 P40/A0
INTERRUPT CONTROLLER
DATA TRANSFER CONTROLLER
CPU
NMI 11
SERIAL COMMUNICATION INTERFACE
8-BIT TIMER
PWM TIMER (x 3 CHANNEL)
16-BIT FREE RUNNING TIMER (x 3 CHANNEL)
10-BIT A/D CONVERTER
WATCH DOG TIMER
AVDD 60
AGND 51
PORT 5
37 P57/A15
36 P56/A14
35 P55/A13
34 P54/A12
33 P53/A11
32 P52/A10
31 P51/A9
30 P50/A8
PORT 6
41 P63/A19
40 P62/A18
39 P61/A17
38 P60/A16
PORT 9
68 67 66 65 64 63 62 61
P97/SCK
P96/RXD
P95/TXD
P94/PW3
P93/PW2
P92/PW1
P91/FTOA3
P90/FTOA2
PORT 8
59 58 57 56 55 54 53 52
P87/AN7
P86/AN6
P85/AN5
P84/AN4
P83/AN3
P82/AN2
P81/AN1
P80/AN0
PORT 7
50 49 48 47 46 45 44 43
P77/FTOA1
P76/FTOB3/FTCI3
P75/FTOB2/FTCI2
P74/FTOB1/FTCI1
P73/FTI3/TMRI
P72/FTI2
P71/FTI1
P70/TMC1

HM514400AS7GS-EL (HITACHI)
C-MOS 4 BIT DYNAMIC RAM
— TOP VIEW —

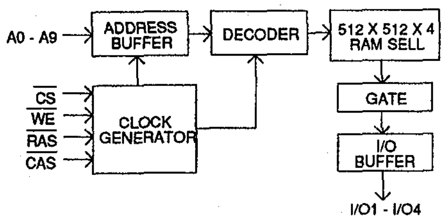


OE 1
I/O3 3
5 GND
I/O2 7
RAS 9
A0 11
A2 13
15 VDD1 (+5V)
A5 17
A7 19
2 CAS
4 I/O4
6 I/O1
8 WE
10 A9
12 A1
14 A3
16 A4
18 A6
20 A7



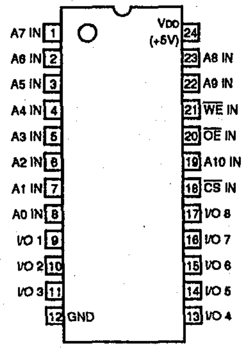
11 A0
12 A1
13 A2
14 A3
16 A4
17 A5
18 A6
19 A7
20 A8
10 A9
9 RAS
2 CAS
WE 8
OE 1
I/O 1 6
I/O 2 7
I/O 3 3
I/O 4 4

A0 - A9 ; ADDRESS INPUT
CAS ; COLUMN ADDRESS STROBE
I/O 1 - I/O 4 ; DATA INPUT/OUTPUT
RAS ; ROW ADDRES STROBE
OE ; OUTPUT ENABLE INPUT
WE ; WRITE ENABLE INPUT

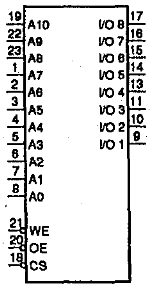


A0 - A9
ADDRESS BUFFER
DECODER
512 X 512 X 4 RAM SELL
GATE
I/O BUFFER
I/O1 - I/O4
CS
WE
RAS
CAS
CLOCK GENERATOR

IDT6116SA25S0 (IDT) FLAT PACKAGE
C-MOS 16K (2K x 8) · BIT STATIC RAM
-TOP VIEW-



A7 IN 1
A6 IN 2
A5 IN 3
A4 IN 4
A3 IN 5
A2 IN 6
A1 IN 7
A0 IN 8
I/O 1 9
I/O 2 10
I/O 3 11
12 GND
VDD (+5V) 24
23 A8 IN
22 A9 IN
21 WE IN
20 OE IN
19 A10 IN
18 CS IN
17 I/O 8
16 I/O 7
15 I/O 6
14 I/O 5
13 I/O 4

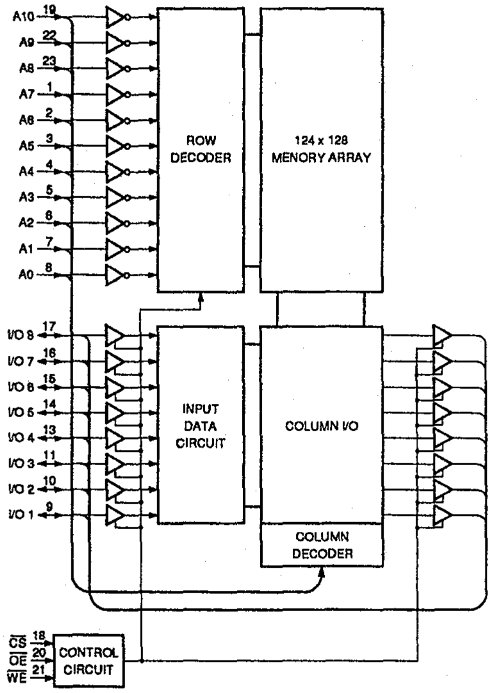


19 A10
22 A9
23 A8
1 A7
2 A6
3 A5
4 A4
5 A3
6 A2
7 A1
8 A0
21 WE
20 OE
18 CS
I/O 8 17
I/O 7 16
I/O 6 15
I/O 5 14
I/O 4 13
I/O 3 11
I/O 2 10
I/O 1 9

A0-A10 ; ADDRESS INPUTS
CS ; CHIP SELECT INPUT
I/O1-I/O8 ; DATA INPUTS/OUTPUTS
OE ; OUTPUT ENABLE INPUT
WE ; WRITE ENABLE INPUT

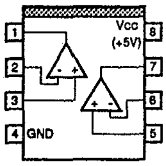
MODE	CS	OE	WE	I/O
STANDBY	1	X	X	HI-Z
READ	0	0	1	DATA OUT
READ	0	1	1	HI-Z
WRITE	0	X	0	DATA IN

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
HI-Z ; HIGH IMPEDANCE



A10 19
A9 22
A8 23
A7 1
A6 2
A5 3
A4 4
A3 5
A2 6
A1 7
A0 8
ROW DECODER
124 x 128 MENORY ARRAY
I/O 8 17
I/O 7 16
I/O 6 15
I/O 5 14
I/O 4 13
I/O 3 11
I/O 2 10
I/O 1 9
INPUT DATA CIRCUIT
COLUMN I/O
COLUMN DECODER
CS 18
OE 20
WE 21
CONTROL CIRCUIT

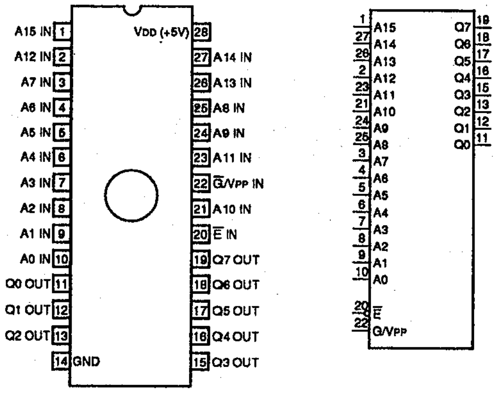
LM358D (TI) FLAT PACKAGE
OPERATIONAL AMPLIFIERS
-TOP VIEW-



1
2
3
4 GND
Vcc (+5V) 8
7
6
5

M27C512-UP18PSYV1.00 (SGS)

C-MOS 512K UV EPROM
-TOP VIEW-

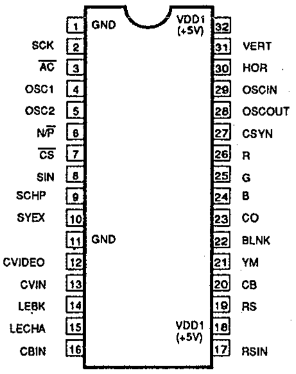


A15 IN 1
A12 IN 2
A7 IN 3
A6 IN 4
A5 IN 5
A4 IN 6
A3 IN 7
A2 IN 8
A1 IN 9
A0 IN 10
Q0 OUT 11
Q1 OUT 12
Q2 OUT 13
14 GND
VDD (+5V) 28
27 A14 IN
26 A13 IN
25 A8 IN
24 A9 IN
23 A11 IN
22 G/VPP IN
21 A10 IN
20 E IN
19 Q7 OUT
18 Q6 OUT
17 Q5 OUT
16 Q4 OUT
15 Q3 OUT
A15 A14 A13 A12 A11 A10 A9 A8 A7 A6 A5 A4 A3 A2 A1 A0
E
G/VPP
Q7 Q6 Q5 Q4 Q3 Q2 Q1 Q0

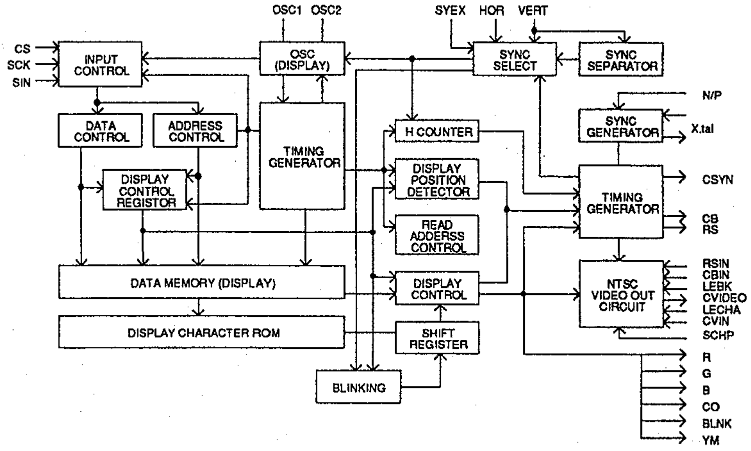
A0-A15 ;ADDRESS INPUTS
E ;CHIP ENABLE INPUT
G/VPP ;OUTPUT ENABLE/PROGRAM SUPPLY INPUT
Q0-Q7 ;DATA OUTPUTS

M50555-218FP

C-MOS TV DISPLAY CONTROLLER
— TOP VIEW —



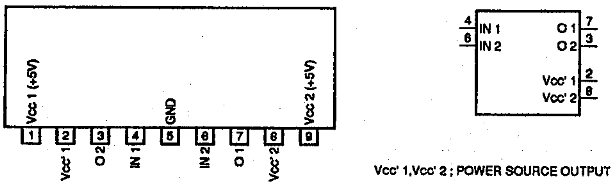
1 GND
SCK 2
AC 3
OSC1 4
OSC2 5
N/P 6
CS 7
SIN 8
SCHP 9
SYEX 10
11 GND
CVIDEO 12
CVIN 13
LEBK 14
LECHA 15
CBIN 16
VDD1 (+5V) 32
31 VERT
30 HOR
29 OSCIN
28 OSCOUT
27 CSYN
26 R
25 G
24 B
23 CO
22 BLNK
21 YM
20 CB
19 RS
VDD1 (+5V) 18
17 RSIN



OSC1 OSC2
SYEX HOR VERT
CS
SCK
SIN
INPUT CONTROL
OSC (DISPLAY)
SYNC SELECT
SYNC SEPARATOR
DATA CONTROL
ADDRESS CONTROL
TIMING GENERATOR
H COUNTER
N/P
SYNC GENERATOR
X.tal
DISPLAY CONTROL REGISTOR
DISPLAY POSITION DETECTOR
TIMING GENERATOR
CSYN
READ ADDERSS CONTROL
CB
RS
DATA MEMORY (DISPLAY)
DISPLAY CONTROL
NTSC VIDEO OUT CIRCUIT
RSIN
CBIN
LEBK
CVIDEO
LECHA
CVIN
SCHP
DISPLAY CHARACTER ROM
SHIFT REGISTER
R
G
B
CO
BLNK
YM
BLINKING

M54544AL (MITSUBISHI)

BI-DIRECTIONAL MOTOR DRIVER WITH THERMAL SHUT DOWN FUNCTION
-PRINTED SIDE VIEW-

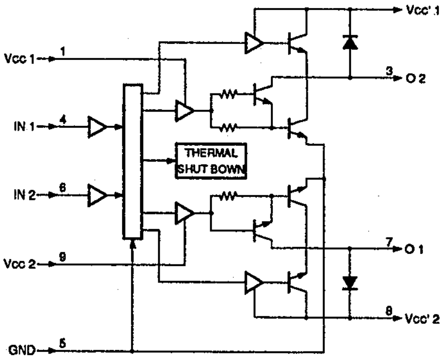


Vcc 1 (+5V)
GND
Vcc 2 (+5V)
1 2 3 4 5 6 7 8 9
Vcc' 1
O 2
IN 1
IN 2
O 1
Vcc' 2
4 IN 1
6 IN 2
O 1 7
O 2 3
Vcc' 1 2
Vcc' 2 8

Vcc' 1,Vcc' 2 ; POWER SOURCE OUTPUT

INPUT		OUTPUT		FUNCTION
IN 1	IN 2	O 1	O 2	
0	0	"OFF" STATE	"OFF" STATE	IC PASSIVITY
1	0	1	0	POSITIVE ROTATING
0	1	0	1	NEGATIVE ROTATING
1	1	0	0	BRAKE

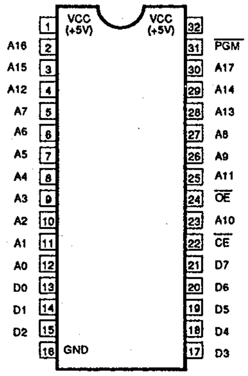
0 ; LOW LEVEL
1 ; HIGH LEVEL



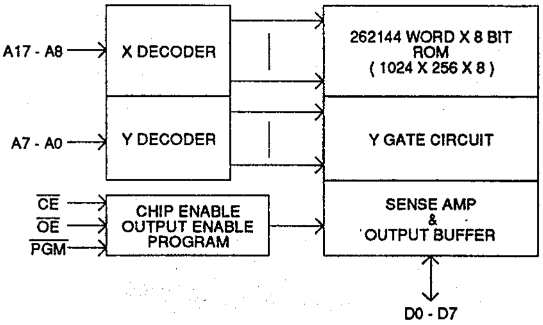
Vcc' 1
Vcc 1 1
3 O 2
IN 1 4
THERMAL SHUT DOWN
IN 2 6
7 O 1
Vcc 2 9
8 Vcc' 2
GND 5

M5M27C201FP-S75M-E2
M5M27C201FP-UP18S-E2
M5M27C201FP-UP18R-E2

C-MOS ONE TIME PROGRAMMABLE ROM
— TOP VIEW —



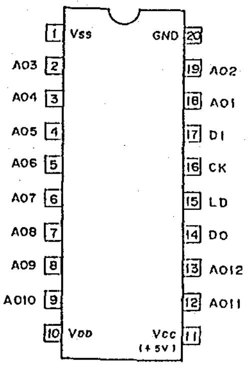
1 VCC (+5V)
A16 2
A15 3
A12 4
A7 5
A6 6
A5 7
A4 8
A3 9
A2 10
A1 11
A0 12
D0 13
D1 14
D2 15
16 GND
VCC (+5V) 32
31 PGM
30 A17
29 A14
28 A13
27 A8
26 A9
25 A11
24 OE
23 A10
22 CE
21 D7
20 D6
19 D5
18 D4
17 D3

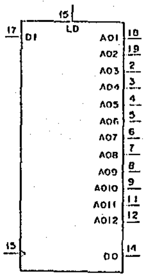


A17 - A8
X DECODER
262144 WORD X 8 BIT ROM (1024 X 256 X 8)
A7 - A0
Y DECODER
Y GATE CIRCUIT
CE
OE
PGM
CHIP ENABLE OUTPUT ENABLE PROGRAM
SENSE AMP & OUTPUT BUFFER
D0 - D7

M62352GP (MITSUBISHI) FLAT PACKAGE

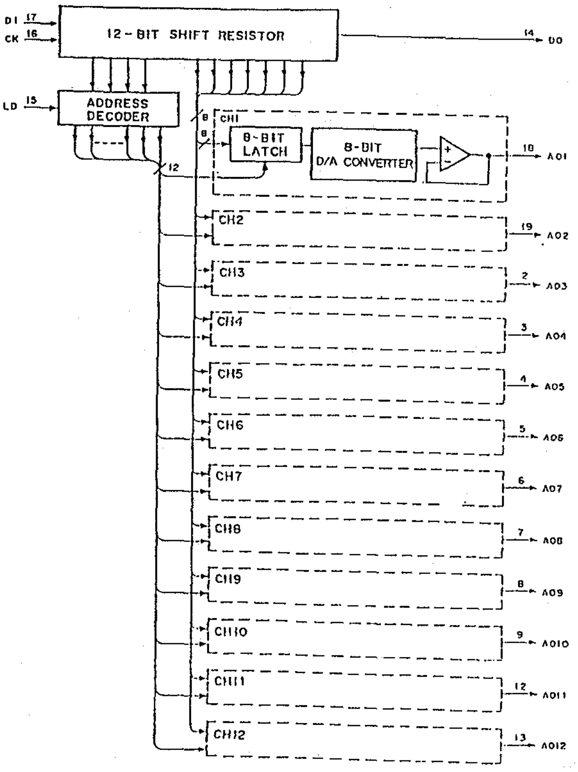
C-MOS 8-BITx12 CHANNEL D/A CONVERTER
(WITH BUFFER OPERATIONAL AMPLIFIER)
– TOP VIEW –


1 Vss
2 AO3
3 AO4
4 AO5
5 AO6
6 AO7
7 AO8
8 AO9
9 AO10
10 VDD
11 Vcc (+5V)
12 AO11
13 AO12
14 DO
15 LD
16 CK
17 DI
18 AO1
19 AO2
20 GND


15 LD
17 DI
AO1 18
AO2 19
AO3 2
AO4 3
AO5 4
AO6 5
AO7 6
AO8 7
AO9 8
AO10 9
AO11 11
AO12 12
15
DO 14

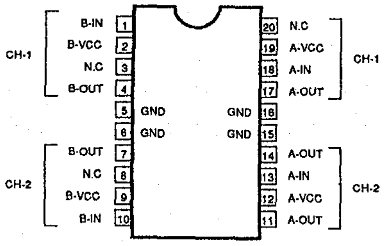
AO1 ~ AO12 : 8-BIT D/A OUTPUT
CK : CLOCK INPUT
DI : SERIAL DATA INPUT
DO : DATA OUTPUT

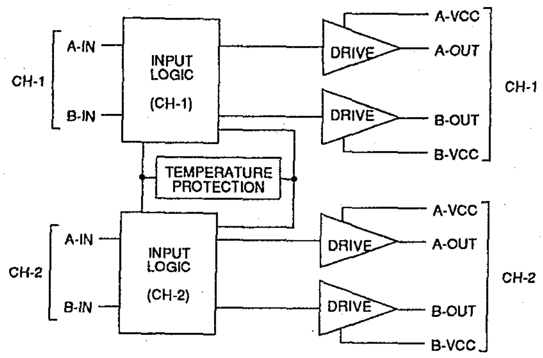
NOTE :
3.5V < VDD < Vcc
– 3.5V < Vss < Vcc


DI 17
CK 16
12 - BIT SHIFT RESISTOR
14 DO
LD 15
ADDRESS DECODER
12
8
CH1
8-BIT LATCH
8-BIT D/A CONVERTER
18 AO1
CH2
19 AO2
CH3
2 AO3
CH4
3 AO4
CH5
4 AO5
CH6
5 AO6
CH7
6 AO7
CH8
7 AO8
CH9
8 AO9
CH10
9 AO10
CH11
12 AO11
CH12
13 AO12

MB3863PF-G-BND

DUAL MODE MOTOR DRIVER
– TOP VIEW –

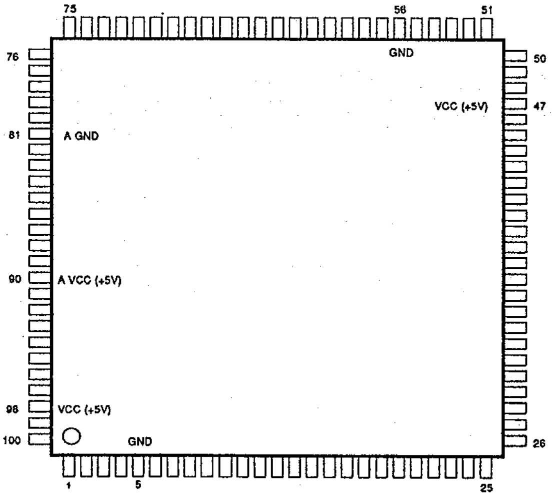

CH-1
1 B-IN
2 B-VCC
3 N.C
4 B-OUT
5 GND
6 GND
CH-2
7 B-OUT
8 N.C
9 B-VCC
10 B-IN
20 N.C
19 A-VCC
18 A-IN
17 A-OUT
CH-1
16 GND
15 GND
14 A-OUT
13 A-IN
12 A-VCC
11 A-OUT
CH-2


CH-1
A-IN
B-IN
INPUT LOGIC (CH-1)
DRIVE
DRIVE
A-VCC
A-OUT
B-OUT
B-VCC
CH-1
TEMPERATURE PROTECTION
CH-2
A-IN
B-IN
INPUT LOGIC (CH-2)
DRIVE
DRIVE
A-VCC
A-OUT
B-OUT
B-VCC
CH-2

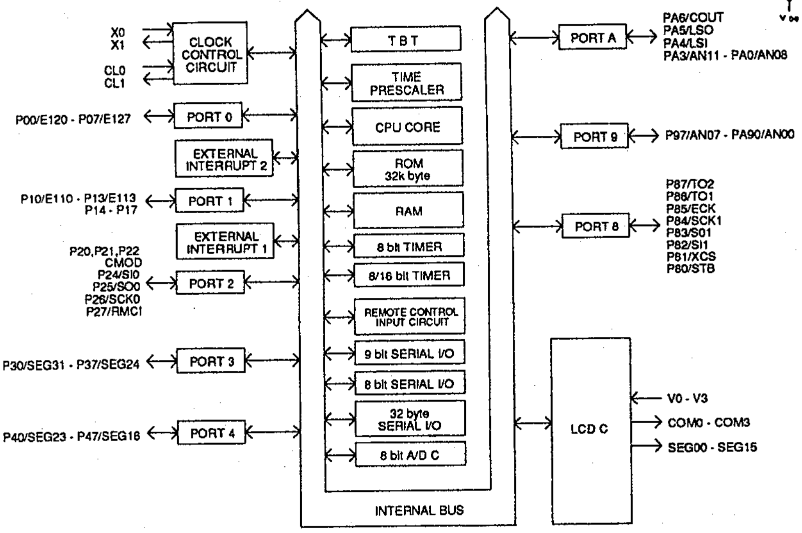
MB89093PFV-G122-BND

C-MOS 8 BIT MICROCOMPUTER

— TOP VIEW —


75
56
51
GND
76
50
VCC (+5V)
47
81
A GND
90
A VCC (+5V)
98
VCC (+5V)
100
GND
26
1
5
25

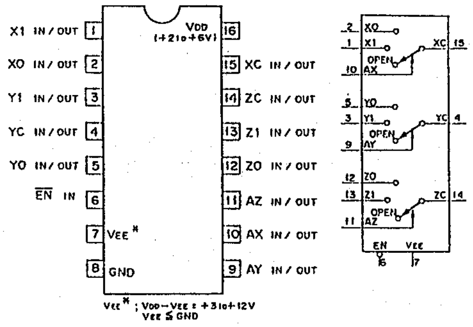
PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	I	MOD0	26	I/O	CMOD	51	O	SEG12	76	I/O	P83/SO1
2	I	MOD1	27	I/O	P24/SI0	52	O	SEG11	77	I/O	P84/SCK1
3	I	X0	28	I/O	P25/SO0	53	O	SEG10	78	I/O	P85/ECK
4	O	X1	29	I/O	P26/SCK0	54	O	SEG09	79	I/O	P86/T01
5	-	VSS	30	I/O	P27/RMCI	55	O	SEG08	80	I/O	P87/T02
6	I	XRST	31	I/O	P30/SEG31	56	-	VSS	81	-	A VSS
7	I/O	P00/E120	32	I/O	P31/SEG30	57	O	SEG07	82	I/O	P90/AN00
8	I/O	P01/E121	33	I/O	P32/SEG29	58	O	SEG06	83	I/O	P91/AN01
9	I/O	P02/E122	34	I/O	P33/SEG28	59	O	SEG05	84	I/O	P92/AN02
10	I/O	P03/E123	35	I/O	P34/SEG27	60	O	SEG04	85	I/O	P93/AN03
11	I/O	P04/E124	36	I/O	P35/SEG26	61	O	SEG03	86	I/O	P94/AN04
12	I/O	P05/E125	37	I/O	P36/SEG25	62	O	SEG02	87	I/O	P95/AN05
13	I/O	P06/E126	38	I/O	P37/SEG24	63	O	SEG01	88	I/O	P96/AN06
14	I/O	P07/E127	39	I/O	P40/SEG23	64	O	SEG00	89	I/O	P97/AN07
15	I/O	P10/E110	40	I/O	P41/SEG22	65	I	V3	90	-	VCC (+5V)
16	I/O	P11/E111	41	I/O	P42/SEG21	66	I	V2	91	I/O	PA0/AN08
17	I/O	P12/E112	42	I/O	P43/SEG20	67	I	V1	92	I/O	PA1/AN09
18	I/O	P13/E113	43	I/O	P44/SEG19	68	I	V0	93	I/O	PA2/AN10
19	I/O	P14	44	I/O	P45/SEG18	69	O	COM0	94	I/O	PA3/AN11
20	I/O	P15	45	I/O	P46/SEG17	70	O	COM1	95	I/O	PA4/LSI
21	I/O	P16	46	I/O	P47/SEG16	71	O	COM2	96	I/O	PA5/LSO
22	I/O	P17	47	-	VCC (+5V)	72	O	COM3	97	I/O	PA6/COUT
23	I/O	P20	48	O	SEG15	73	I/O	P80/STB	98	-	VCC (+5V)
24	I/O	P21	49	O	SEG14	74	I/O	P81/XCS	99	O	CL1
25	I/O	P22	50	O	SEG13	75	I/O	P82/SI1	100	I	CL0


X0
X1
CL0
CL1
CLOCK CONTROL CIRCUIT
P00/E120 - P07/E127
PORT 0
EXTERNAL INTERRUPT 2
P10/E110 - P13/E113
P14 - P17
PORT 1
EXTERNAL INTERRUPT 1
P20,P21,P22
CMOD
P24/SI0
P25/SO0
P26/SCK0
P27/RMCI
PORT 2
P30/SEG31 - P37/SEG24
PORT 3
P40/SEG23 - P47/SEG16
PORT 4
TBT
TIME PRESCALER
CPU CORE
ROM
32k byte
RAM
8 bit TIMER
8/16 bit TIMER
REMOTE CONTROL INPUT CIRCUIT
9 bit SERIAL I/O
8 bit SERIAL I/O
32 byte SERIAL I/O
8 bit A/D C
INTERNAL BUS
PORT A
PA6/COUT
PA5/LSO
PA4/LSI
PA3/AN11 - PA0/AN08
PORT 9
P97/AN07 - PA90/AN00
PORT 8
P87/TO2
P86/TO1
P85/ECK
P84/SCK1
P83/S01
P82/SI1
P81/XCS
P80/STB
LCD C
V0 - V3
COM0 - COM3
SEG00 - SEG15

MC74HC4053F (MOTOROLA) FLAT PACKAGE

C-MOS TRIPLE 2-CHANNEL ANALOG MULTIPLEXER/DEMULTIPLEXER

– TOP VIEW –


X1 IN / OUT 1
X0 IN / OUT 2
Y1 IN / OUT 3
YC IN / OUT 4
Y0 IN / OUT 5
EN IN 6
7 VEE*
8 GND
VDD (+2 to +6V) 16
15 XC IN / OUT
14 ZC IN / OUT
13 Z1 IN / OUT
12 Z0 IN / OUT
11 AZ IN / OUT
10 AX IN / OUT
9 AY IN / OUT
VEE*; VDD−VEE = +3 to +12V
VEE ≦ GND
X0
X1
OPEN
AX
XC
Y0
Y1
AY
YC
Z0
Z1
AZ
ZC
EN
VEE

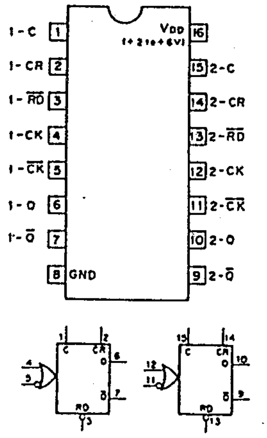
0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE.

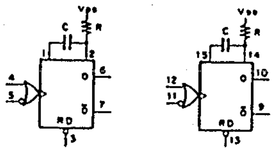
CONT. INPUTS		ON CHANNEL
EN	A (X,Y,Z,)	
0	0	0
0	1	1
1	X	OPEN

MC74HC4538F (MOTOROLA) FLAT PACKAGE

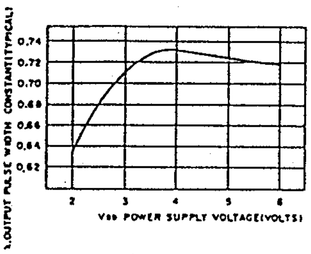
C - MOS DUAL RETRIGGERABLE / NON - RETRIGGERABLE MONOSTABLE MULTIVIBRATOR

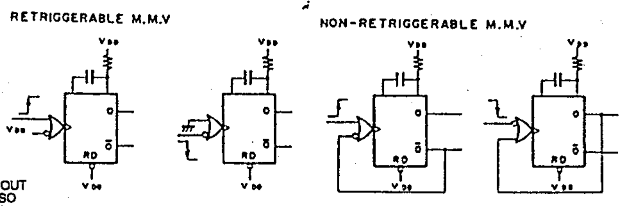
– TOP VIEW –


1 - C 1
1 - CR 2
1 - RD 3
1 - CK 4
1 - CK 5
1 - Q 6
1 - Q 7
8 GND
VDD (+2 to +6V) 16
15 2 - C
14 2 - CR
13 2 - RD
12 2 - CK
11 2 - CK
10 2 - Q
9 2 - Q
C
CR
RD
Q
Q

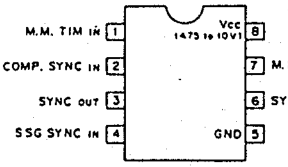


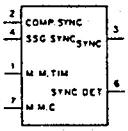
OUTPUT PULSE WIDTH = k·C·R

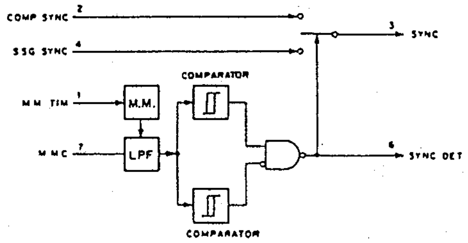



RETRIGGERABLE M.M.V
NON-RETRIGGERABLE M.M.V
VDD
RD
Q
Q

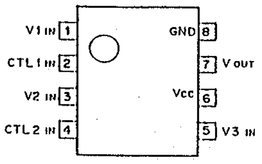
NJM2230M (JRC) FLAT PACKAGE
VIDEO SIGNAL DETECTOR
– TOP VIEW –

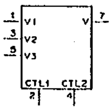

M.M. TIM IN 1
COMP. SYNC IN 2
SYNC OUT 3
SSG SYNC IN 4
Vcc (4.75 to 10V) 8
M.M.C IN 7
SYNC DET IN 6
GND 5


2 COMP.SYNC
4 SSG SYNC
SYNC 3
1 M.M.TIM
SYNC DET 6
7 M.M.C


COMP SYNC 2
SSG SYNC 4
3 SYNC
COMPARATOR
M.M TIM 1
M.M.
M.M.C 7
LPF
6 SYNC DET
COMPARATOR

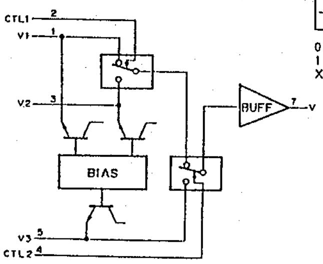
NJM2246M (JRC) FLAT PACKAGE
3-INPUT VIDEO SIGNAL SWITCH
– TOP VIEW –


V1 IN 1
CTL1 IN 2
V2 IN 3
CTL2 IN 4
GND 8
7 V OUT
Vcc 6
5 V3 IN


1 V1
3 V2
5 V3
V 7
CTL1 CTL2
2 4

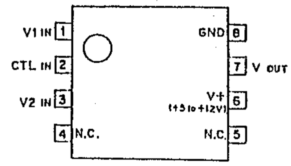
CTL1	CTL2	V
0	0	V1
1	0	V2
X	1	V3

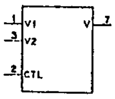
0 : LOW LEVEL
1 : HIGH LEVEL
X : DON'T CARE

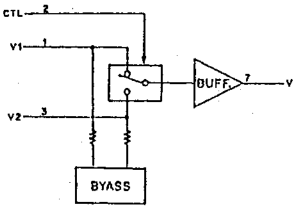

CTL1 2
V1 1
V2 3
BUFF
7 V
BIAS
V3 5
CTL2 4

TYPE	GAIN	Vcc
NJM2235M	0dV	+5 to +15V
NJM2246D	+6dV	+4.75 to +13V
NJM2246M		

NJM2233BM (JRC) FLAT PACKAGE
2-INPUT SIGNAL VIDEO SWITCH
– TOP VIEW –


V1 IN 1
CTL IN 2
V2 IN 3
4 N.C.
GND 8
7 V OUT
V+ (+5 to +12V) 6
N.C. 5

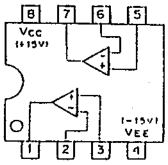

1 V1
3 V2
2 CTL
V 7


CTL 2
V1 1
V2 3
BUFF. 7 V
BYASS

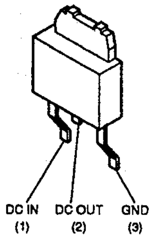
CTL	V
0	V1
1	V2

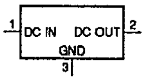
0 : LOW LEVEL
1 : HIGH LEVEL

NJM4560M (JRC) FLAT PACKAGE
DUAL OPERATIONAL AMPLIFIER
– TOP VIEW –

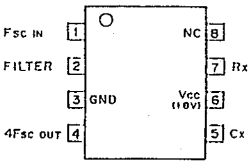

8 7 6 5
Vcc (+15V)
(–15V) VEE
1 2 3 4

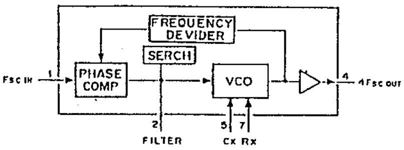
PQ05SZ1U (SHARP)
SERIES REGURATOR


DC IN (1)
DC OUT (2)
GND (3)

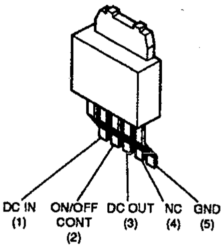

1 DC IN
DC OUT 2
GND
3

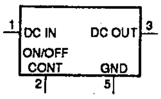
NJM2240M (JRC) FLAT PACKAGE
4-TIMES OSCILLATOR
– TOP VIEW –


Fsc IN 1
FILTER 2
3 GND
4Fsc OUT 4
NC 8
7 Rx
Vcc (10V) 6
5 Cx


FREQUENCY DEVIDER
SERCH
Fsc IN 1
PHASE COMP
VCO
4 4Fsc OUT
2 FILTER
5 7 Cx Rx

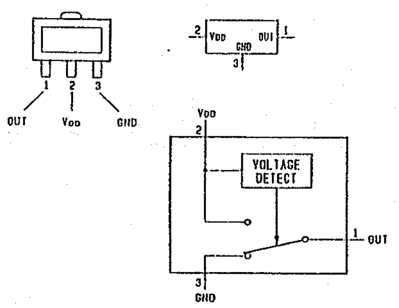
PQ05TZ1U (SHARP)
SERIES REGURATOR


DC IN (1)
ON/OFF CONT (2)
DC OUT (3)
NC (4)
GND (5)


1 DC IN
DC OUT 3
ON/OFF CONT
GND
2 5

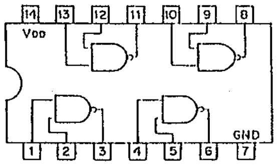
S-8054ALB-LM-S (SEKIO I AND E) 4.00-4.30V

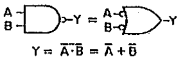
C-MOS VOLTAGE DETECTOR
– TOP VIEW –


1
2
3
OUT
VDD
GND
2
VDD
OUT
1
GND
3
VDD
2
VOLTAGE DETECT
1
OUT
3
GND

SN74HC00ANS (TI) FLAT PACKAGE

C-MOS QUAD 2-INPUT NAND GATE
– TOP VIEW –


14
13
12
11
10
9
8
VDD
GND
1
2
3
4
5
6
7



$Y = \overline{A \cdot B} = \overline{A} + \overline{B}$

A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

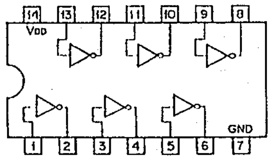
0; LOW LEVEL
1; HIGH LEVEL

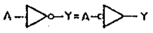
NOTE :

TYPE	VDD
TC74AC00P TC74AC00F	+2 to +5.5V
MC74HCT00N 74ACT00PC	+5V
OTHER TYPES	+2 to +6V

SN74HC04ANS (TI) FLAT PACKAGE

C-MOS HEX INVERTERS
– TOP VIEW –


14
13
12
11
10
9
8
VDD
GND
1
2
3
4
5
6
7



$Y = \overline{A}$

A	Y
0	1
1	0

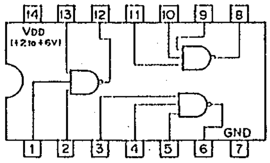
0 ; LOW LEVEL
1 ; HIGH LEVEL

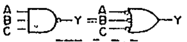
NOTE :

TYPE	VDD
74HCT04 TYPE	+5V
74VHC TC74AC04 TYPE	+2 to +5.5V
74ACT04 TYPE	+4.5 to +5.5V
OTHER TYPES	+2 to +6V

SN74HC10ANS (TI) FLAT PACKAGE

C-MOS 3-INPUT NAND GATE
– TOP VIEW –


14
13
12
11
10
9
8
VDD
(+2 to +6V)
GND
1
2
3
4
5
6
7



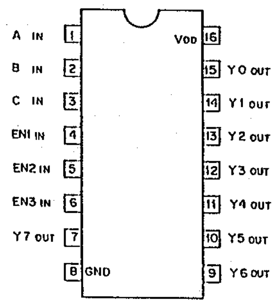
$Y = \overline{ABC} = \overline{A} + \overline{B} + \overline{C}$

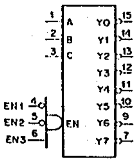
A	B	C	Y
0	0	0	1
0	0	1	1
0	1	0	1
0	1	1	1
1	0	0	1
1	0	1	1
1	1	0	1
1	1	1	0

0 : LOW LEVEL
1 : HIGH LEVEL

SN74HC138ANS (TI) FLAT PACKAGE

C-MOS 3-TO-8 LINE DECODER/DEMULTIPLEXER
– TOP VIEW –


A IN
1
B IN
2
C IN
3
EN1 IN
4
EN2 IN
5
EN3 IN
6
Y7 OUT
7
8
GND
VDD
16
15
Y0 OUT
14
Y1 OUT
13
Y2 OUT
12
Y3 OUT
11
Y4 OUT
10
Y5 OUT
9
Y6 OUT


1
A
2
B
3
C
EN1
4
EN2
5
EN3
6
EN
Y0
15
Y1
14
Y2
13
Y3
12
Y4
11
Y5
10
Y6
9
Y7
7

NOTE :

TYPE	VDD
74AC/74HC	+2 to +6V
74ACT/74HCT	+5V
TC74AC138	+2 to +5.5V

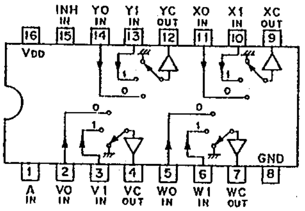
INPUTS				OUTPUTS							
EN	C	B	A	Y7	Y6	Y5	Y4	Y3	Y2	Y1	Y0
0	X	X	X	1	1	1	1	1	1	1	1
1	0	0	0	1	1	1	1	1	1	1	0
1	0	0	1	1	1	1	1	1	1	0	1
1	0	1	0	1	1	1	1	1	0	1	1
1	0	1	1	1	1	1	1	0	1	1	1
1	1	0	0	1	1	1	0	1	1	1	1
1	1	0	1	1	1	0	1	1	1	1	1
1	1	1	0	1	0	1	1	1	1	1	1
1	1	1	1	0	1	1	1	1	1	1	1

$EN = \overline{EN1} \cdot \overline{EN2} \cdot EN3$

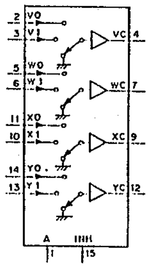
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

SN74HC157ANS (TI) FLAT PACKAGE

C-MOS QUAD 2-LINE-TO-1-LINE DATA SELECTOR/MULTIPLEXER
– TOP VIEW –


INH IN
Y0 IN
Y1 IN
YC OUT
X0 IN
X1 IN
XC OUT
16
15
14
13
12
11
10
9
VDD
1
0
GND
1
2
3
4
5
6
7
8
A IN
V0 IN
V1 IN
VC OUT
W0 IN
W1 IN
WC OUT

TC74HC157P


2
V0
3
V1
VC
4
5
W0
6
W1
WC
7
11
X0
10
X1
XC
9
14
Y0
13
Y1
YC
12
A
INH
1
15

NOTE :

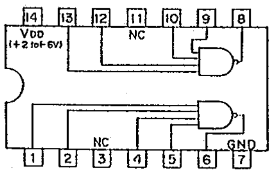
TYPE	VDD
74ACT157	+5V
TC74AC157P TC74AC157F	+2 to +5.5V
OTHER TYPES	+2 to +6V

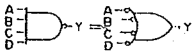
CONT. IN		ON CHANNEL
INH	A	
0	0	0
0	1	1
1	X	GND

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE

SN74HC20ANS (TI) FLAT PACKAGE

C-MOS 4-INPUT POSITIVE-NAND GATE
– TOP VIEW –


14
13
12
11
10
9
8
VDD
(+2 to +6V)
NC
NC
GND
1
2
3
4
5
6
7


A
B
C
D
Y
A
B
C
D
Y

$Y = \overline{A \cdot B \cdot C \cdot D} = \overline{A} + \overline{B} + \overline{C} + \overline{D}$

A	B	C	D	Y
0	0	0	0	1
0	0	0	1	1
0	0	1	0	1
0	0	1	1	1
0	1	0	0	1
⋮	⋮	⋮	⋮	⋮
1	1	0	1	1
1	1	1	0	1
1	1	1	1	0

0; LOW LEVEL
1; HIGH LEVEL

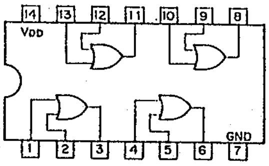
NOTE :

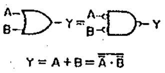
TYPE	VDD
TC74AC20	+2V to +5.5V
OTHER TYPES	+2V to +6V

SN74HC32ANS (TI) FLAT PACKAGE

C-MOS 2-INPUT OR GATE

– TOP VIEW –


14
13
12
11
10
9
8
VDD
GND
1
2
3
4
5
6
7



$Y = A + B = \overline{\overline{A} \cdot \overline{B}}$

A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1

0 ; LOW LEVEL
1 ; HIGH LEVEL

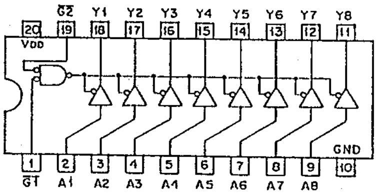
NOTE :

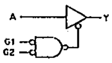
TYPE	VDD
TC74AC32	+2 to +5.5V
OTHER TYPES	+2 to +6V

SN74HC541ANS (TI) FLAT PACKAGE

C-MOS BUFFERS AND LINE DRIVERS WITH 3-STATE OUTPUTS

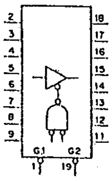
– TOP VIEW –


$\overline{G2}$
Y1
Y2
Y3
Y4
Y5
Y6
Y7
Y8
20
19
18
17
16
15
14
13
12
11
VDD
GND
1
2
3
4
5
6
7
8
9
10
$\overline{G1}$
A1
A2
A3
A4
A5
A6
A7
A8



G1	G2	A	Y
0	0	0	0
0	0	1	1
1	X	X	HI-Z
X	1	X	HI-Z

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
HI-Z ; HIGH IMPEDANCE


2
3
4
5
6
7
8
9
18
17
16
15
14
13
12
11
G1
G2
1
19

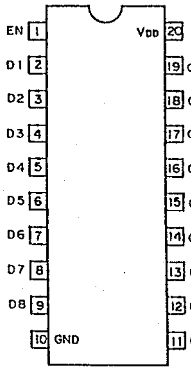
NOTE :

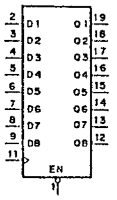
TYPE	VDD
AC	+2 to +5.5V
HC	+2 to +6V
ACT/HCT	+5V

SN74HC574ANS (TI) FLAT PACKAGE

C-MOS 3-STATE D-TYPE EDGE-TRIGGERED FLIP-FLOP

– TOP VIEW –

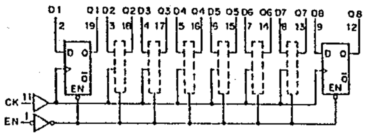

EN 1
D1 2
D2 3
D3 4
D4 5
D5 6
D6 7
D7 8
D8 9
10 GND
VDD 20
19 Q1
18 Q2
17 Q3
16 Q4
15 Q5
14 Q6
13 Q7
12 Q8
11 CK


2 D1
3 D2
4 D3
5 D4
6 D5
7 D6
8 D7
9 D8
11
Q1 19
Q2 18
Q3 17
Q4 16
Q5 15
Q6 14
Q7 13
Q8 12
EN
1

EACH FLIP-FLOP

INPUTS			OUT
EN	CK	D	Q
0	↑	1	1
0	↑	0	0
0	↓	X	Qo
1	X	X	HI-Z

0 : LOW LEVEL
1 : HIGH LEVEL
X : DON'T CARE
HI - Z : HIGH IMPEDANCE
Qo ; NO CHANGE


D1
Q1
D2
Q2
D3
Q3
D4
Q4
D5
Q5
D6
Q6
D7
Q7
D8
Q8
2
19
3
18
4
17
5
16
6
15
7
14
8
13
9
12
D
Q
EN
CK 11
EN 1

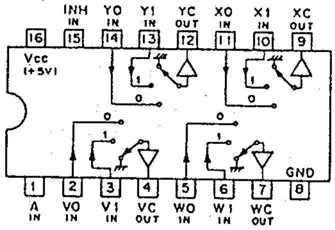
NOTE :

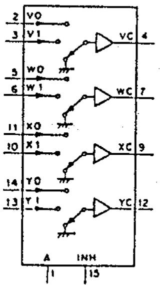
TYPE	VDD
74AC/74HC	+ 2 to + 6V
74ACT/74HCT	+ 5V
TC74AC574F	+ 2 to + 5.5V

SN74LS157NS (TI)

C-MOS 2-INPUT OR GATE

– TOP VIEW –


INH IN
YO IN
Y1 IN
YC OUT
XO IN
X1 IN
XC OUT
16
15
14
13
12
11
10
9
Vcc (+5V)
GND
1
2
3
4
5
6
7
8
A IN
VO IN
V1 IN
VC OUT
WO IN
W1 IN
WC OUT


2 VO
3 V1
VC 4
5 WO
6 W1
WC 7
11 XO
10 X1
XC 9
14 YO
13 Y1
YC 12
A
INH
1
15

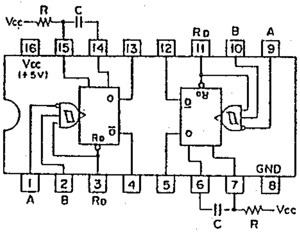
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

CONT. IN		ON CHANNEL
INH	A	
0	0	0
0	1	1
1	X	GND

SN74LS221NS (TI) FLAT PACKAGE

TTL MONOSTABLE MULTIVIBRATOR WITH SCHMITT TRIGGER INPUT

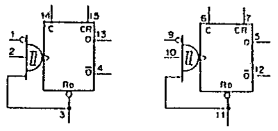
— TOP VIEW —


R
C
Vcc
RD
B
A
16
15
14
13
12
11
10
9
Vcc (+5V)
GND
1
2
3
4
5
6
7
8
A
B
RD
C
R
Vcc

INPUTS			OUTPUTS	
RD	A	B	Q	$\overline{Q}$
0	X	X	0	1
X	1	X	0	1
X	X	0	0	1
1	0	↑	⎍	⊔
↑	↓	1	⎍	⊔
↑	0	1	⎍	⊔

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

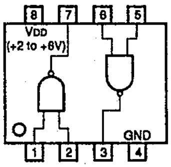
OUTPUT PULSE WIDTH = 0.7CR

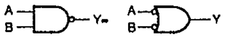

14
15
1
2
C
CR
13
4
RD
3
6
7
9
10
C
CR
5
12
RD
11

TC7W00F (TOSHIBA) FLAT PACKAGE

C-MOS DUAL 2-INPUT NAND GATE

-TOP VIEW-


8
7
6
5
VDD (+2 to +6V)
GND
1
2
3
4



$Y = \overline{A \cdot B} = \overline{A} + \overline{B}$

A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

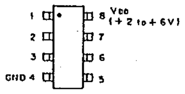
0 ; LOW LEVEL
1 ; HIGH LEVEL

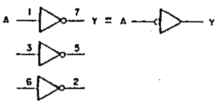
TC7WU04F (TOSHIBA) CHIP PACKAGE

C-MOS HEX INVERTERS

(SCALE 3/1)

-TOP VIEW-


1
2
3
GND 4
8 VDD (+2 to +6V)
7
6
5


A
1
7
Y =
A
Y
3
5
6
2

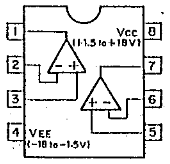
$Y = \overline{A}$

A	Y
0	1
1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

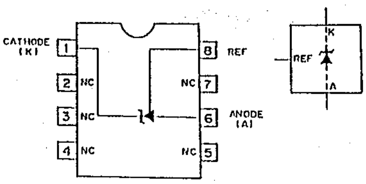
TL072CPS (TI) FLAT PACKAGE
TL082M (TI)

OPERATIONAL AMPLIFIER
(JFET INPUT)
– TOP VIEW –


Vcc
(+1.5 to +18V)
VEE
(−18 to −1.5V)
1
2
3
4
5
6
7
8

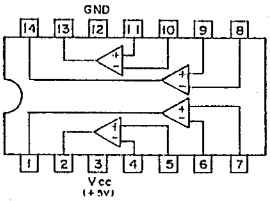
TL431CPS (TI) FLAT PACKAGE

ADJUSTABLE PRECISION SHUNT REGULATOR
– TOP VIEW –


CATHODE (K)
REF
NC
ANODE (A)
K
REF
A
1
2
3
4
5
6
7
8

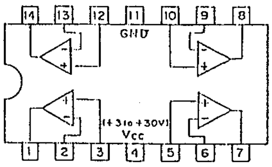
UPC339G2 (NEC) FLAT PACKAGE

QUAD COMPARATORS
– TOP VIEW –


GND
Vcc
(+5V)
14
13
12
11
10
9
8
1
2
3
4
5
6
7

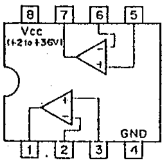
UPC324G2 (NEC) FLAT PACKAGE

QUAD OPERATIONAL AMPLIFIERS
– TOP VIEW –


GND
(+3 to +30V)
Vcc
14
13
12
11
10
9
8
1
2
3
4
5
6
7

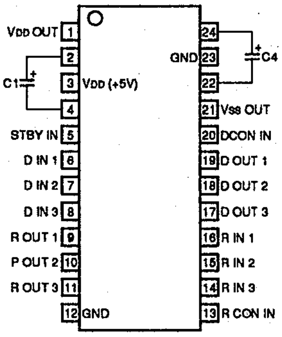
UPC393G2 (NEC) FLAT PACKAGE

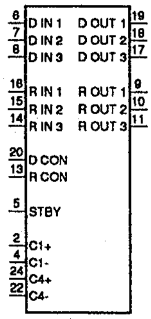
DUAL VOLTAGE COMPARATORS
– TOP VIEW –


Vcc
(+2 to +36V)
GND
8
7
6
5
1
2
3
4

UPD4713GT (NEC) FLAT PACKAGE

C-MOS RS-232D LINE DRIVER/RECEIVER
-TOP VIEW-


VDD OUT
1
2
C1
3 VDD (+5V)
4
STBY IN 5
D IN 1 6
D IN 2 7
D IN 3 8
R OUT 1 9
P OUT 2 10
R OUT 3 11
12 GND
24
GND 23
C4
22
21 Vss OUT
20 DCON IN
19 D OUT 1
18 D OUT 2
17 D OUT 3
16 R IN 1
15 R IN 2
14 R IN 3
13 R CON IN


6 D IN 1
7 D IN 2
8 D IN 3
D OUT 1 19
D OUT 2 18
D OUT 3 17
16 R IN 1
15 R IN 2
14 R IN 3
R OUT 1 9
R OUT 2 10
R OUT 3 11
20 D CON
13 R CON
5 STBY
2 C1+
4 C1-
24 C4+
22 C4-

D IN 1-D IN 3 ; DRIVE DATA INPUTS
D OUT 1-D OUT 3 ; DRIVE DATA OUTPUTS
D CONT ; DRIVER CONTROL INPUT
R IN 1-R IN 3 ; RECEIVE DATA INPUTS
R OUT 1-R OUT 3 ; RECEIVE DATA OUTPUTS
R CONT ; RECEIVER CONTROL INPUT
STBY ; STANDBY

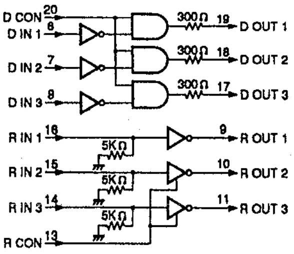
DRIVER

STBY	DCON	D IN	D OUT	FUNCTION
1	X	X	HI-Z	STANDBY MODE (D/D CON OFF)
0	0	X	0	MARK LEVEL OUTPUT
0	1	0	1	SPACE LEVEL OUTPUT
0	1	1	0	MARK LEVEL OUTPUT

RECEIVER

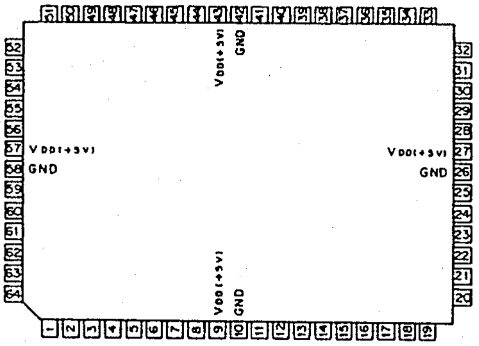
STBY	D IN	D OUT	FUNCTION
1	X	HI-Z	STANDBY MODE (D/D CON OFF)
0	0	1	MARK LEVEL INPUT
0	1	0	SPACE LEVEL INPUT

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
HI-Z ; HIGH IMPEDANCE


D CON 20
D IN 1 6
D IN 2 7
D IN 3 8
300Ω 19 D OUT 1
300Ω 18 D OUT 2
300Ω 17 D OUT 3
R IN 1 16
R IN 2 15
R IN 3 14
R CON 13
5KΩ
5KΩ
5KΩ
9 R OUT 1
10 R OUT 2
11 R OUT 3

UPD65006GF-250-3B8 (NEC)

C-MOS
– TOP VIEW –

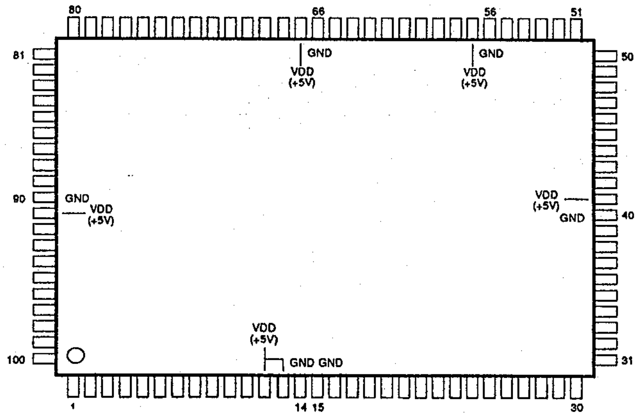

VDD(+5V)
GND
VDD(+5V)
GND
VDD(+5V)
GND
VDD(+5V)
GND
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64

PIN NO	PIN NAME	PIN NO.	PIN NAME	PIN NO.	PIN NAME	PIN NO.	PIN NAME
1		17	P8	33		49	INT VD
2		18	P9	34		50	
3	MEMO HDL	19	P10	35	HDL7	51	
4	SWD HDL	20	CAS1	36	HDL6	52	INT HD
5	SWD VD	21	CAS2	37	HDL5	53	INT SYNC
6	VBLK	22	CUP	38	HDL4	54	SWD HD
7	P0	23	VBLK	39	HDL3	55	MONI SYNC
8	P1	24	$\overline{\text{A.EN}}$	40	HDL2	56	SIG DET
9	VDD	25	IN/$\overline{\text{M}}$	41	HDL1	57	VDD
10	GND	26	GND	42	GND	58	GND
11	P2	27	VDD	43	VDD	59	HD
12	P3	28	HD RET	44	D/A CK	60	SYNC
13	P4	29	HD OUT	45	$\overline{\text{RAS}}$	61	VD
14	P5	30	RES	46	CK	62	FULL /SPLIT
15	P6	31	HDL9	47	EXT D/A	63	SP8/$\overline{\text{SP4}}$
16	P7	32	HDL8	48	INT D/A	64	IN/$\overline{\text{MEMO}}$

UPD65013GF-407-3BA

C-MOS GATE ARRAY

– TOP VIEW –

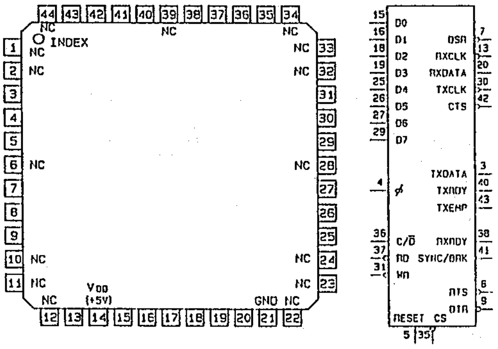

80
66
56
51
81
50
GND
VDD (+5V)
GND
VDD (+5V)
90
GND
VDD (+5V)
VDD (+5V)
GND
40
VDD (+5V)
GND GND
100
31
1
14 15
30

PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1		CS1O	26		CAS2	51		A0	76		G2BE
2		CS0O	27		CAS1	52		A1	77		G1AE
3		MFY3	28		CAS0	53		A2	78		G1BE
4		MY3	29		RAS9	54		A3	79		G1AW
5		MY2	30		RAS8	55		A4	80		G1BW
6		MY1	31		RAS7	56		GND	81		R2AW
7		MY0	32		RAS6	57		VDD (+5V)	82		R2BW
8		Y3	33		RAS5	58		A5	83		R2AE
9		Y2	34		RAS4	59		A6	84		R2BE
10		Y1	35		RAS3	60		A7	85		R1AE
11		Y0	36		RAS2	61		A8	86		R1BE
12		VDD (+5V)	37		RAS1	62		A9	87		R1AW
13		VDD (+5V)	38		RAS0	63		B2BW	88		R1BW
14		GND	39		CAS5	64		B2AE	89		INMB
15		GND	40		GND	65		B2AW	90		GND
16		CS2B	41		VDD (+5V)	66		GND	91		VDD (+5V)
17		CRB	42		CAS6	67		VDD (+5V)	92		AEN
18		CS1B	43		CAS7	68		B2BE	93		HBL
19		BCBB	44		CAS8	69		B1AE	94		VBL
20		BCGB	45		ABRB	70		B1BE	95		CUP
21		BCRB	46		CAS9	71		B1AW	96		CRY
22		MBRW	47		CS0	72		B1BW	97		CS4
23		FTHB	48		CS1	73		G2AW	98		CS4O
24		CAS4	49		CS2	74		G2BW	99		CS3O
25		CAS3	50		CS3	75		G2AE	100		CS2O

UPD71051GB-10-3B4 (NEC) FLAT PACKAGE

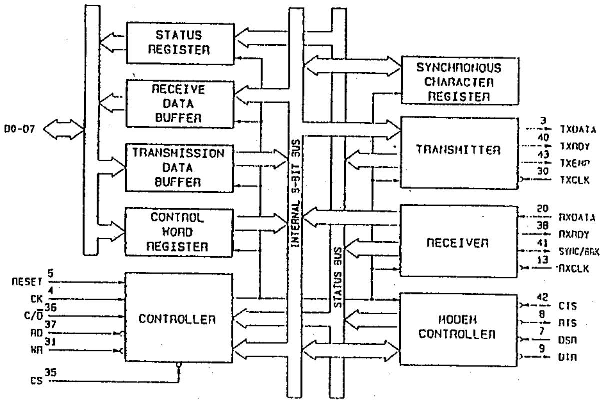
C-MOS SERIAL CONTROLLER

– TOP VIEW –


44
43
42
41
40
39
38
37
36
35
34
NC
NC
NC
INDEX
1 NC
2 NC
3
4
5
6 NC
7
8
9
10 NC
11 NC
NC
V_DD (+5V)
GND NC
12
13
14
15
16
17
18
19
20
21
22
NC 33
NC 32
31
30
29
NC 28
27
26
25
NC 24
NC 23
15 D0
16 D1
18 D2
19 D3
25 D4
26 D5
27 D6
29 D7
4 ϕ
36 C/D̄
37 RD
31 WR
RESET 5
CS 35
DSR 7
RXCLK 13
RXDATA 20
TXCLK 30
CTS 42
TXDATA 3
TXRDY 40
TXEMP 43
RXRDY 38
SYNC/BRK 41
RTS 6
DTR 9

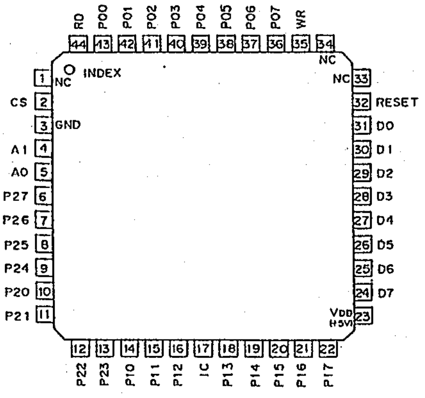
PIN NO.	I/O	SYMBOL	PIN NO.	I/O	SYMBOL	PIN NO.	I/O	SYMBOL	PIN NO.	I/O	SYMBOL
1	—	NC	12	—	NC	23	—	NC	34	—	NC
2	—	NC	13	I	RXCLK	24	—	NC	35	I	CS
3	0	TXDATA	14	—	V_{DD} (+5V)	25	I/0	D4	36	I	C/D̄
4	I	CK	15	I/0	D0	26	I/0	D5	37	I	RD
5	I	RESET	16	I/0	D1	27	I/0	D6	38	0	RXRDY
6	—	NC	17	—	IC	28	—	NC	39	—	NC
7	I	DSR	18	I/0	D2	29	I/0	D7	40	0	TXRDY
8	0	RTS	19	I/0	D3	30	I	TXCLK	41	I/0	SYNC/BRK
9	0	DTR	20	I	RXDATA	31	I	WR	42	I	CTS
10	—	NC	21	—	GND	32	—	NC	43	0	TXEMP
11	—	NC	22	—	NC	33	—	NC	44	—	NC

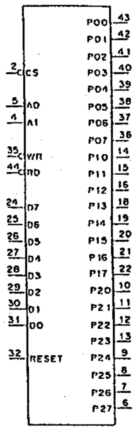
CS	; CHIP SELECT INPUT	TXRDY	; TRANSMIT READY OUTPUT
CTS	; CLEAR TO SEND OUTPUT	RD	; READ STROBE INPUT
C/D̄	; CONTROL/DATA SELECT INPUT	RESET	; RESET INPUT
D0-D7	; DATA INPUTS/OUTPUTS	RTS	; REQUEST TO SEND OUTPUT
DSR	; DATA SET READY INPUT	RXCLK	; RECEIVER CLOCK INPUT
DTR	; DATA TERMINAL READY OUTPUT	RXDATA	; RECEIVE DATA INPUT
TXCLK	; TRANSMITTER CLOCK INPUT	RXRDY	; RECEIVER READY OUTPUT
TXDATA	; TRANSMIT DATA OUTPUT	SYNC/BRK	; SYNCHRONIZATION/BREAK INPUT/OUTPUT
TXEMP	; TRANSMITTER EMPTY OUTPUT	WR	; WRITE STROBE INPUT


STATUS REGISTER
RECEIVE DATA BUFFER
TRANSMISSION DATA BUFFER
CONTROL WORD REGISTER
CONTROLLER
D0-D7
RESET 5
CK 4
C/D̄ 36
RD 37
WR 31
CS 35
INTERNAL 8-BIT BUS
STATUS BUS
SYNCHRONOUS CHARACTER REGISTER
TRANSMITTER
RECEIVER
MODEM CONTROLLER
3 TXDATA
40 TXRDY
43 TXEMP
30 TXCLK
20 RXDATA
38 RXRDY
41 SYNC/BRK
13 RXCLK
42 CTS
8 RTS
7 DSR
9 DTR

UPD71055GB-10-3B4 (NEC) FLAT PACKAGE

C-MOS PARALLEL INTERFACE UNIT
– TOP VIEW –


RD 44
P00 43
P01 42
P02 41
P03 40
P04 39
P05 38
P06 37
P07 36
WR 35
NC 34
NC 1
INDEX
CS 2
GND 3
A1 4
A0 5
P27 6
P26 7
P25 8
P24 9
P20 10
P21 11
NC 33
RESET 32
D0 31
D1 30
D2 29
D3 28
D4 27
D5 26
D6 25
D7 24
VDD (+5V) 23
P22 12
P23 13
P10 14
P11 15
P12 16
IC 17
P13 18
P14 19
P15 20
P16 21
P17 22

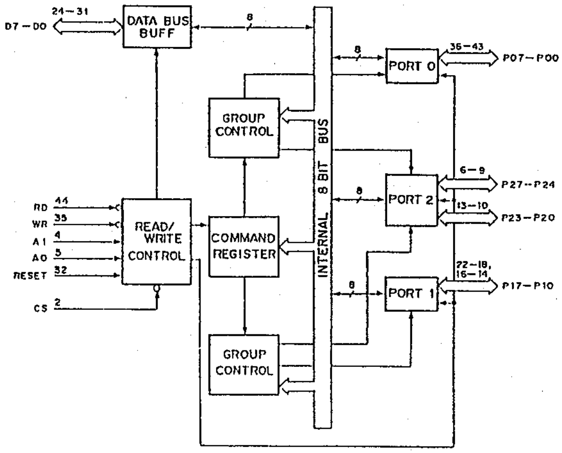

2 CS
5 A0
4 A1
35 WR
44 RD
24 D7
25 D6
26 D5
27 D4
28 D3
29 D2
30 D1
31 D0
32 RESET
P00 43
P01 42
P02 41
P03 40
P04 39
P05 38
P06 37
P07 36
P10 14
P11 15
P12 16
P13 18
P14 19
P15 20
P16 21
P17 22
P20 10
P21 11
P22 12
P23 13
P24 9
P25 8
P26 7
P27 6

A1, A0 : ADDRESS
CS : CHIP SELECT
D7 – D0 : DATA BUS
P07 – P00 : PORT 0
P17 – P10 : PORT 1
P27 – P20 : PORT 2
RD : READ STROBE
WR : WRITE STROBE

IC : INTERNALLY CONNECTED

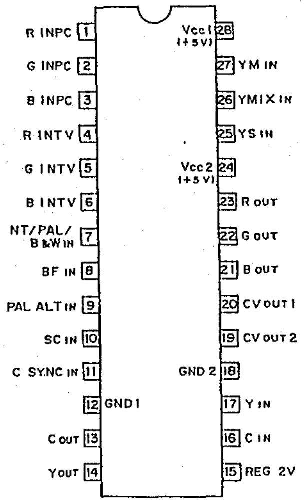
CS	RD	WR	A1	A0	OPERATION	CPU ACTION
0	0	1	0	0	PROT 0 ⟶ DATA · BUS	INPUT
0	0	1	0	1	PROT 1 ⟶ DATA · BUS	INPUT
0	0	1	1	0	PROT 2 ⟶ DATA · BUS	INPUT
0	0	1	1	1	DISABLE	
0	0	0	X	X		
0	1	0	0	0	DATA · BUS ⟶ PROT 0	OUTPUT
0	1	0	0	1	DATA · BUS ⟶ PROT 1	OUTPUT
0	1	0	1	0	DATA · BUS ⟶ PROT 2	OUTPUT
0	1	0	1	1	DATA · BUS ⟶ COMMAND REGISTER	OUTPUT
0	1	1	X	X	HIGH IMPEDANCE	
1	X	X	X	X		

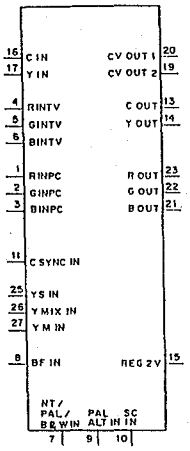
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

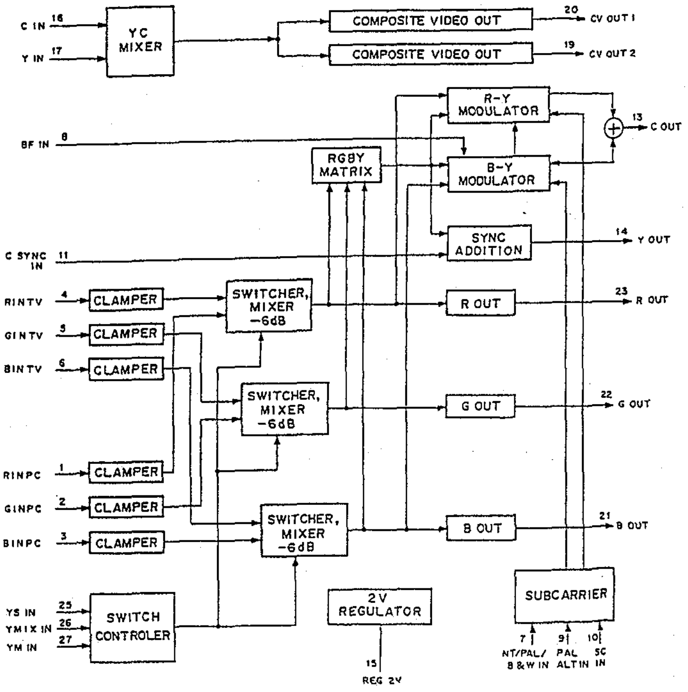

D7 – D0
24 – 31
DATA BUS BUFF
8
PORT 0
36 – 43
P07 – P00
GROUP CONTROL
INTERNAL 8 BIT BUS
6 – 9
P27 – P24
PORT 2
13 – 10
P23 – P20
RD 44
WR 35
A1 4
A0 5
RESET 32
CS 2
READ/ WRITE CONTROL
COMMAND REGISTER
22 – 18, 16 – 14
PORT 1
P17 – P10
GROUP CONTROL

V7040(SONY)

NTSC/PAL ENCODER
— TOP VIEW —


R INPC 1
G INPC 2
B INPC 3
R INTV 4
G INTV 5
B INTV 6
NT/PAL/ B&W IN 7
BF IN 8
PAL ALT IN 9
SC IN 10
C SYNC IN 11
12 GND1
C OUT 13
YOUT 14
Vcc1 (+5V) 28
27 YM IN
26 YMIX IN
25 YS IN
Vcc2 (+5V) 24
23 R OUT
22 G OUT
21 B OUT
20 CV OUT 1
19 CV OUT 2
GND 2 18
17 Y IN
16 C IN
15 REG 2V


16 C IN
17 Y IN
4 RINTV
5 GINTV
6 BINTV
1 RINPC
2 GINPC
3 BINPC
11 C SYNC IN
25 YS IN
26 YMIX IN
27 YM IN
8 BF IN
CV OUT 1 20
CV OUT 2 19
C OUT 13
Y OUT 14
R OUT 23
G OUT 22
B OUT 21
REG 2V 15
NT/ PAL/ B&W IN 7
PAL ALT IN 9
SC IN 10


C IN 16
Y IN 17
YC MIXER
COMPOSITE VIDEO OUT
COMPOSITE VIDEO OUT
20 CV OUT 1
19 CV OUT 2
R-Y MODULATOR
B-Y MODULATOR
13 C OUT
BF IN 8
RGBY MATRIX
SYNC ADDITION
14 Y OUT
C SYNC IN 11
RINTV 4
GINTV 5
BINTV 6
CLAMPER
CLAMPER
CLAMPER
SWITCHER, MIXER −6dB
SWITCHER, MIXER −6dB
SWITCHER, MIXER −6dB
R OUT
23 R OUT
G OUT
22 G OUT
B OUT
21 B OUT
RINPC 1
GINPC 2
BINPC 3
CLAMPER
CLAMPER
CLAMPER
YS IN 25
YMIX IN 26
YM IN 27
SWITCH CONTROLER
2V REGULATOR
15 REG 2V
SUBCARRIER
7 NT/PAL/ B&W IN
9 PAL ALT IN
10 SC IN

FUNCTION TABLE

PIN NO.	SYMBOLIC NAME	DESCRIPTION
1	RINPC	RED INPUT FROM PERSONAL COMPUTER
2	GINPC	GREEN INPUT FROM PERSONAL COMPUTER
3	BINPC	BLUE INPUT FROM PERSONAL COMPUTER
4	RINTV	RED INPUT FROM TV
5	GINTV	GREEN INPUT FROM TV
6	BINTV	BLUE INPUT FROM TV
7	NT/PAL/B&W IN	MODE SELECTION VOLTAGE INPUT NTSC MODE: 4.0V ≦ V7 PAL MODE: 2.0V ≦ V7 ≦ 3.0V BLACK AND WHITE MODE: V7 ≦ 0.8V V7 IS THE VOLTAGE MUST BE APPLIED
8	BF IN	BURST FLAG SIGNAL INPUT
9	PAL ALT IN	PAL LINE ALTERNATION PULSE INPUT
10	SC IN	SUBCARRIER INPUT
11	C SYNC IN	COMPOSITE SYNCHRONIZING SIGNAL INPUT
12	GND1	GROUND EXCLUDED RGB OUT AND CV OUT
13	C OUT	CHROMA SIGNAL OUTPUT
14	Y OUT	Y SIGNAL OUTPUT
15	REG 2V	REFERENCE VOLTAGE
16	C IN	CHROMA SIGNAL INPUT
17	Y IN	Y SIGNAL INPUT
18	GND2	GROUND FOR RGB OUT AND CV OUT STAGES
19	CV OUT2	COMPOSITE VIDEO SIGNAL OUTPUT
20	CV OUT1	
21	B OUT	BLUE SIGNAL OUTPUT
22	G OUT	GREEN SIGNAL OUTPUT
23	R OUT	RED SIGNAL OUTPUT
24	Vcc2	Vcc FOR RGB OUT AND CV OUT STAGES
25	YS IN	See below table.
26	YMIX IN	
27	YM IN	
28	Vcc1	Vcc EXCLUDED RGB OUT AND CV OUT STAGES

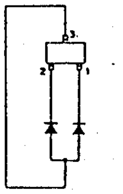
YS/YMIX/YM SWITCH TABLE

YS	YMIX	YM	MODE
L	L	L	TV
L	L	H	HALF TONE
L	H	L	TV
L	H	H	HALF TONE
H	L	L	PC
H	L	H	PC
H	H	L	MIX
H	H	H	MIX

L ≦ 0.8V
H ≧ 2.0V

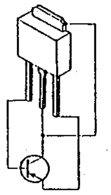
1S2836

(SCALE 4/1)
TOP VIEW



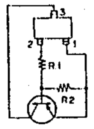
2SB962

(SCALE2/1)

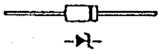


DTA114EK

TOP VIEW (SCALE 4/1)

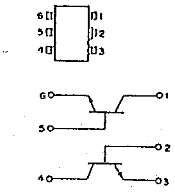


RD9.1EW

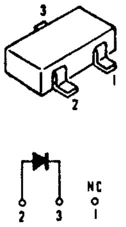


XN4501

(SCALE 6/1)
TOP VIEW

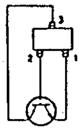


1SS184



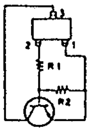
2SC1623

(SCALE 4/1)
TOP VIEW

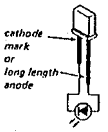


DTC114EK
DTC124EK
DTC144EK

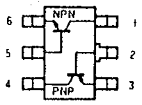
TOP VIEW (SCALE 4/1)



SLP-255B

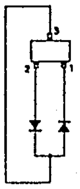

cathode
mark
or
long length
anode

XN4601


6
5
4
NPN
PNP
1
2
3

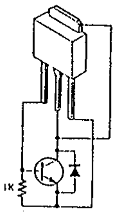
1SS226

(SCALE 4/1)
TOP VIEW



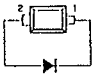
2SD992

(SCALE2/1)



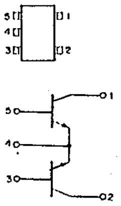
MA8027-L

(SCALE 6/1)
TOP VIEW

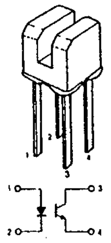


XN1501

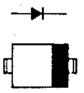
(SCALE 6/1)
TOP VIEW



GP2S40K

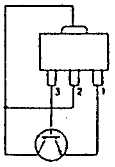


1T33C-01

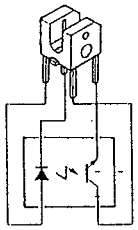


2SD999-CLCK

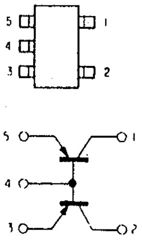
TOP VIEW (SCALE 4/1)



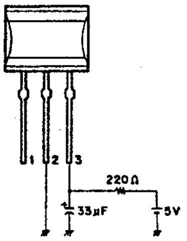
GP1S23



XN2401



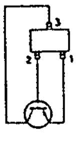
SBX8015-H


1
2
3
220Ω
33μF
5V

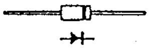
1: Rout
2: GND
3: Vcc

2SA1162-G
2SA1226

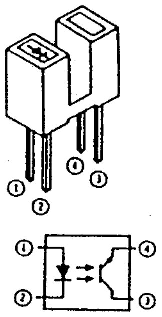
(SCALE 4/1)
TOP VIEW



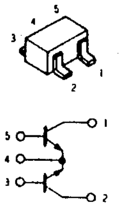
10E-2



GP1S54



XN2501



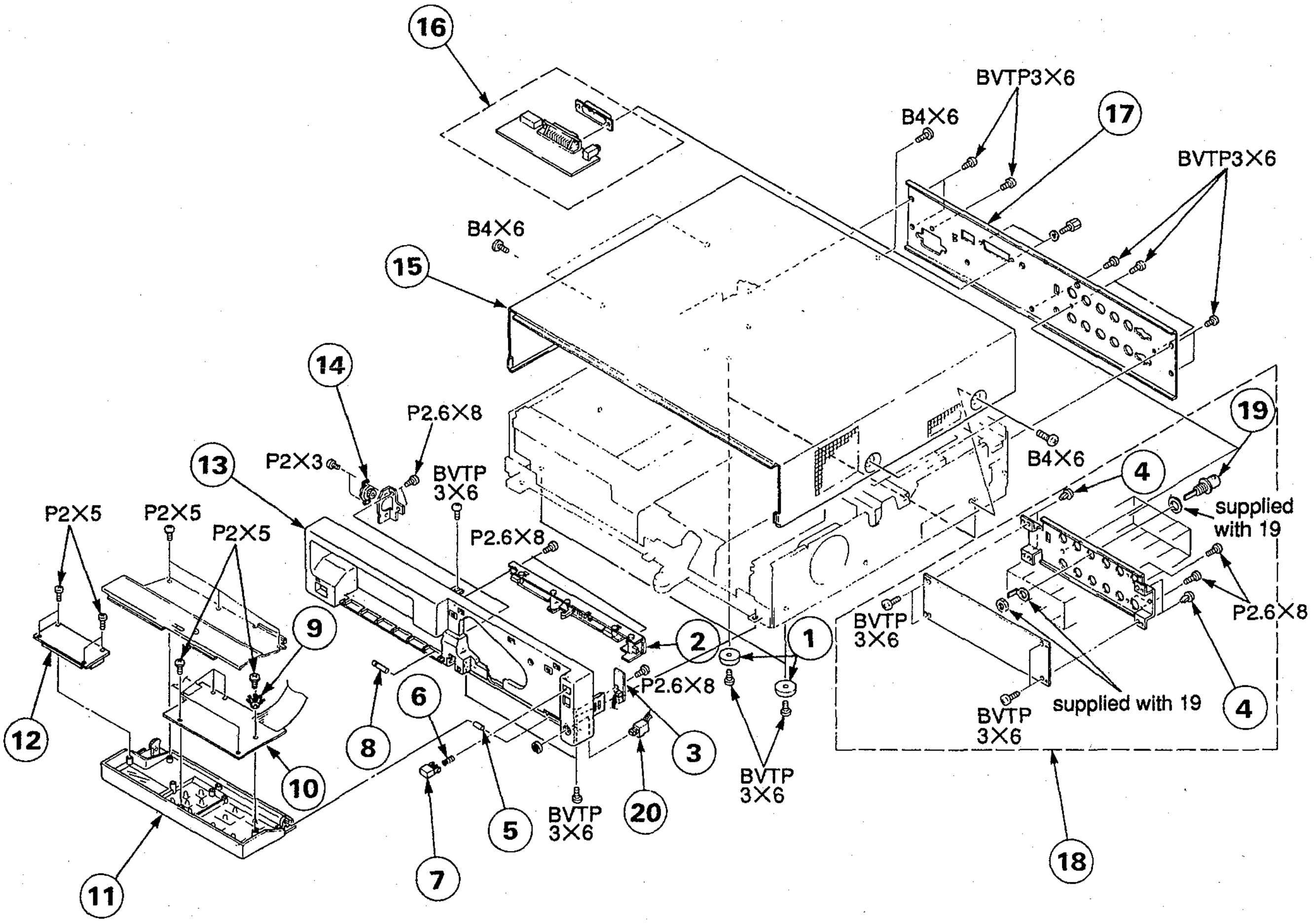
SECTION 5
EXPLODED VIEWS

NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked " ∗ " are not stocked because they are seldom required for routine servicing. Some delay should be expected when ordering these items.

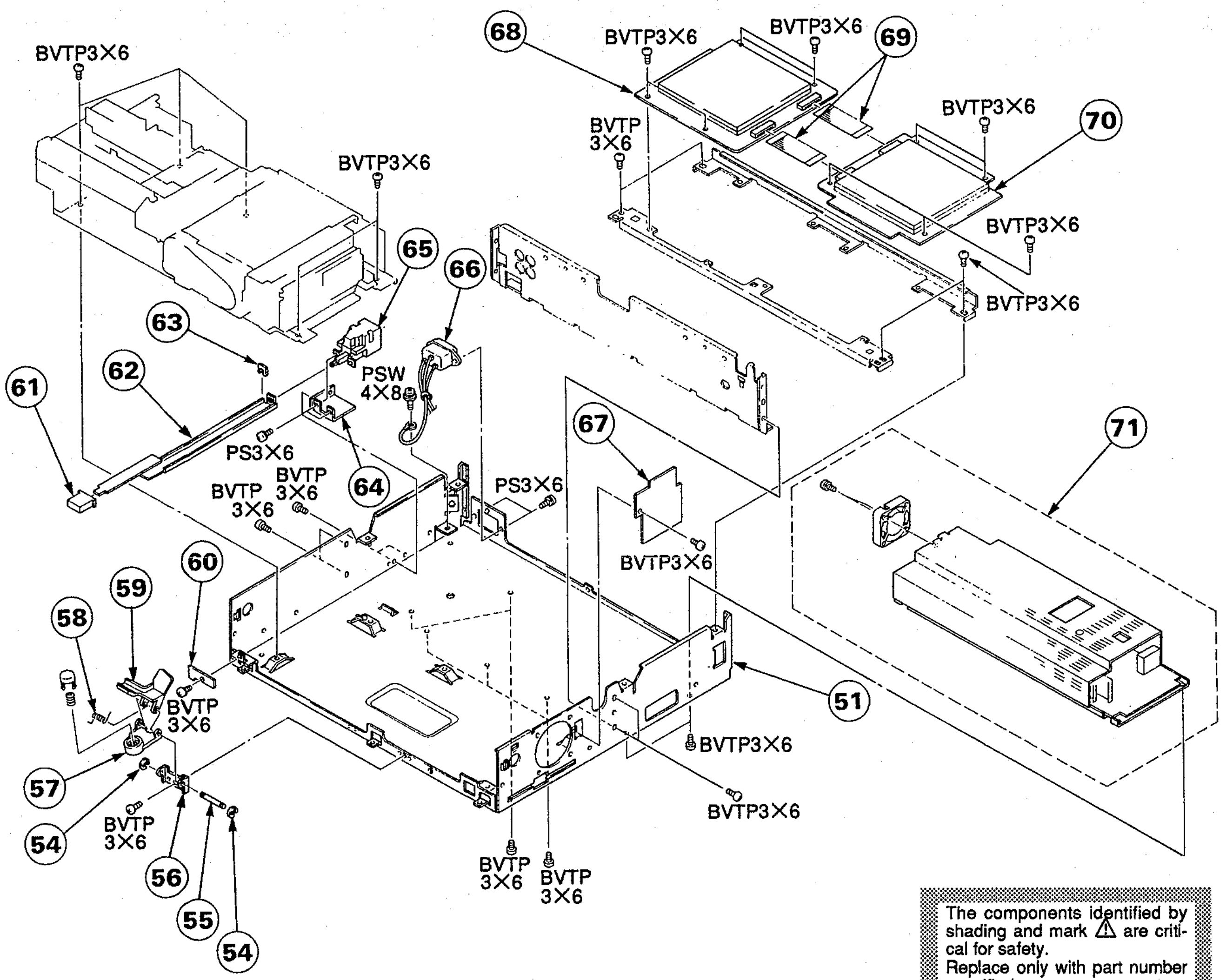
The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

5-1. CABINET ASSEMBLY


16
BVTP3X6
B4X6
17
BVTP3X6
B4X6
15
14
P2.6X8
13
P2X3
BVTP 3X6
19
B4X6
4
supplied with 19
P2X5
P2X5
P2X5
P2.6X8
9
2
1
P2.6X8
BVTP 3X6
P2.6X8
12
6
8
3
BVTP 3X6
supplied with 19
4
10
BVTP 3X6
BVTP 3X6
5
BVTP 3X6
20
11
7
18

Ref.No	Part No.	Description	Remark
1	X-4816-109-1	FOOT ASSY, MINI	
2	A-8267-875-C	CLOSE ASSY, DOOR OPEN	
3	∗A-8275-451-A	PTC-27 BOARD, COMPLETE	
4	1-562-261-41	CONNECTOR, COAXIAL (BNC)	
5	3-183-189-01	SHAFT (R), DOOR FULCRUM	
6	3-183-581-02	SPRING, COMPRESSION COIL	
7	3-183-186-03	BUTTON, OPEN	
8	3-183-188-01	SHAFT (L), DOOR FULCRUM	
9	3-183-656-01	SPRING (KY), PLATE	
10	1-692-855-11	(LCD) KEYBOARD, FFC WITH	
11	X-3167-376-1 X-3167-378-1	PANEL SUB ASSY, DOOR (UP-1800EPM) PANEL SUB ASSY, DOOR (UP-1850EPM)	
12	1-810-412-11	LCD MODULE	
13	X-3167-373-1	PANEL, FRONT SUB ASSY	
14	3-712-786-21	DUMPER, OIL	
15	∗3-183-254-01	COVER, TOP	
16	∗A-8275-461-A	IF-29 BOARD, COMPLETE	
17	∗3-183-627-01	PANEL (RGB), REAR	
18	∗A-8275-454-A	IF-28 BOARD, COMPLETE	
19	3-531-576-11	RIVET, NYLON	
20	1-507-195-21	SPECIAL REMOTE CONTROL JACK	

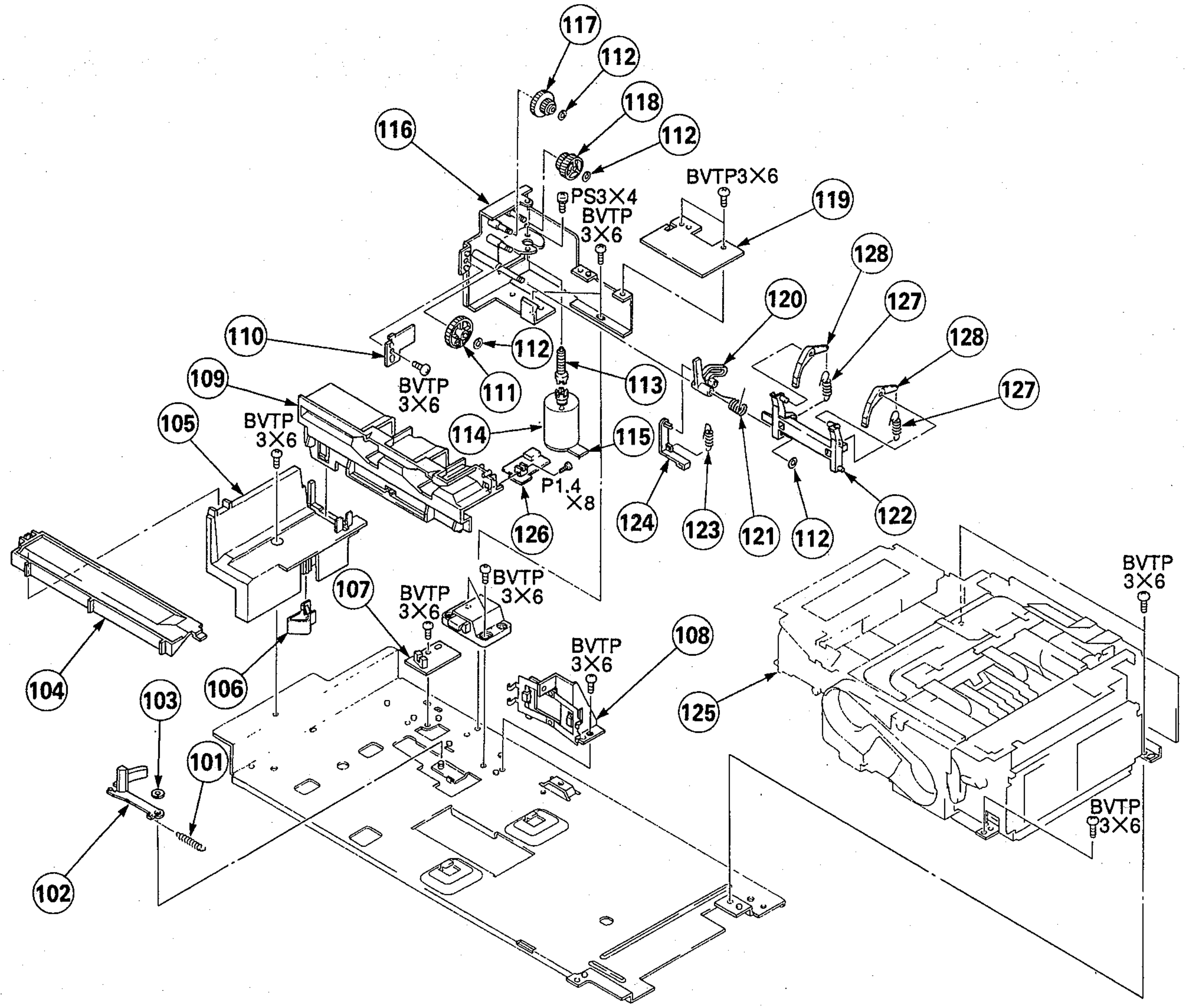
5-2. CHASSIS ASSEMBLY(1)


68
BVTP3X6
BVTP3X6
69
BVTP3X6
BVTP
3X6
BVTP3X6
70
BVTP3X6
BVTP3X6
BVTP3X6
65
66
63
62
61
PSW
4X8
PS3X6
BVTP
3X6
BVTP
3X6
64
PS3X6
67
71
BVTP3X6
60
59
58
BVTP
3X6
51
BVTP3X6
57
BVTP3X6
54
BVTP
3X6
56
55
54
BVTP
3X6
BVTP
3X6

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

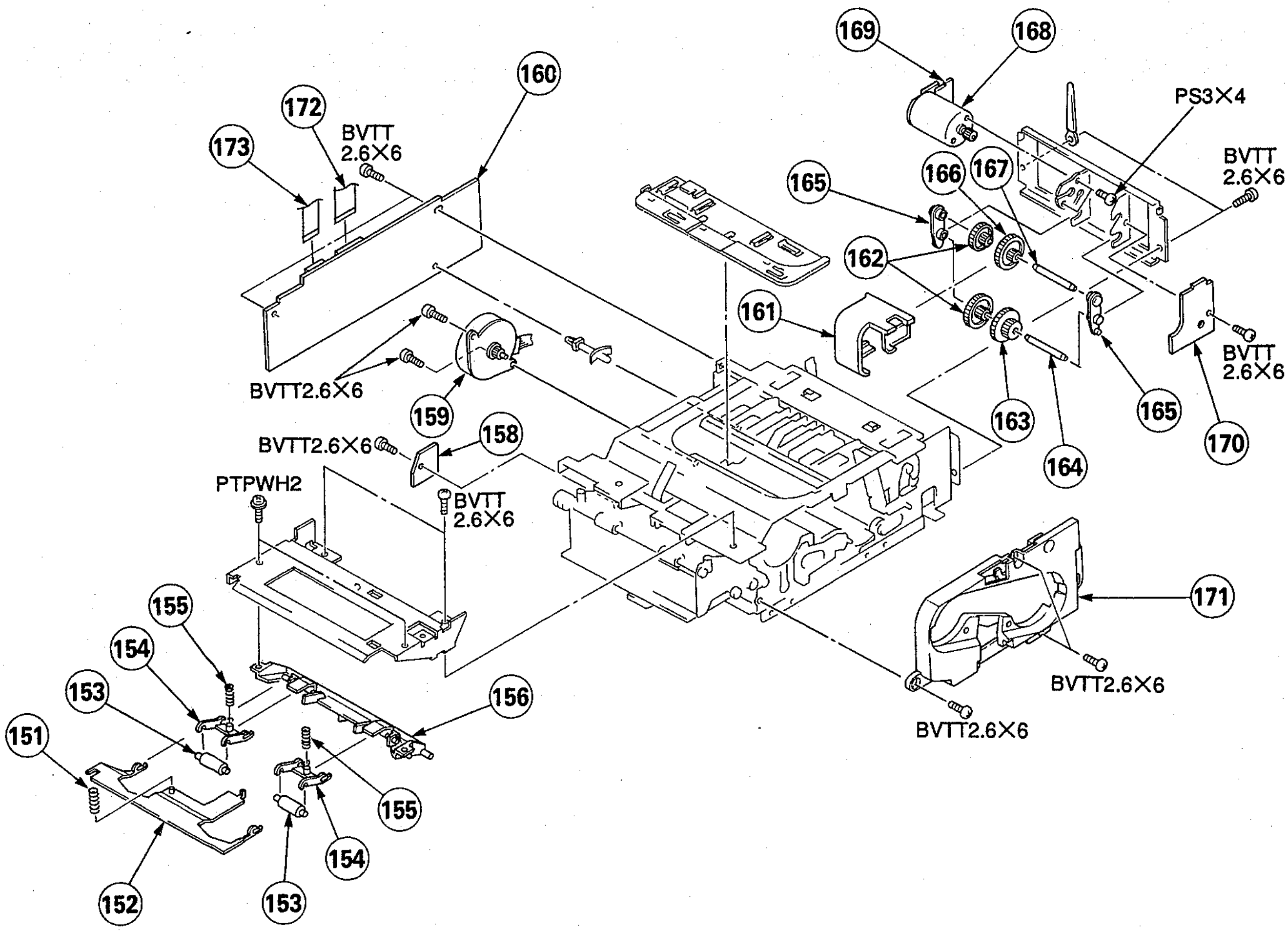
Ref.No	Part No.	Description	Remark
51	*3-183-255-01	CHASSIS	
54	4-926-219-02	RING (DIA.2.3), RETAINING	
55	3-183-200-01	SHAFT, RIBBON PUSH	
56	3-183-187-01	PLATE, FULCRUM	
57	3-183-239-01	PLATE PUSH RIBBON	
58	3-183-183-02	SPRING, TORSION	
59	3-183-238-01	DISCHARGE PLATE, RIBBON	
60	*A-8275-437-A	S-25 BOARD, COMPLETE	
61	2-431-568-31	BUTTON, POWER	
62	*3-183-226-01	ROD, SWITCH	
63	3-725-616-01	STOPPER, ROD	
64	*3-183-178-01	BRACKET, SWITCH	
65	⚠ 1-554-880-12	SWITCH, PUSH (AC POWER) (1 KEY)	
66	⚠ 1-580-375-11	INLET 3P	
67	*A-8275-438-A	KY-15 BOARD, COMPLETE	
68	*A-8275-528-A	FMY-10P(L) BOARD, COMPLETE	(UP-1800EPM)
	*A-8275-495-A	FMY-10P(H) BOARD, COMPLETE	(UP-1850EPM)
69	1-751-235-11	CABLE, FLAT (FVM-2)	
70	*A-8275-527-A	VA-14 BOARD, COMPLETE	
71	⚠ *1-413-946-11	SWITCHING REGULATOR	

5-3. CHASSIS ASSEMBLY(2)


117
112
118
116
112
BVTP3×6
PS3×4
BVTP
3×6
119
128
120
127
128
110
112
109
BVTP
3×6
111
113
127
105
BVTP
3×6
114
115
P1.4
×8
126
124
123
121
112
122
BVTP
3×6
107
BVTP
3×6
BVTP
3×6
108
BVTP
3×6
104
103
106
125
101
BVTP
3×6
102

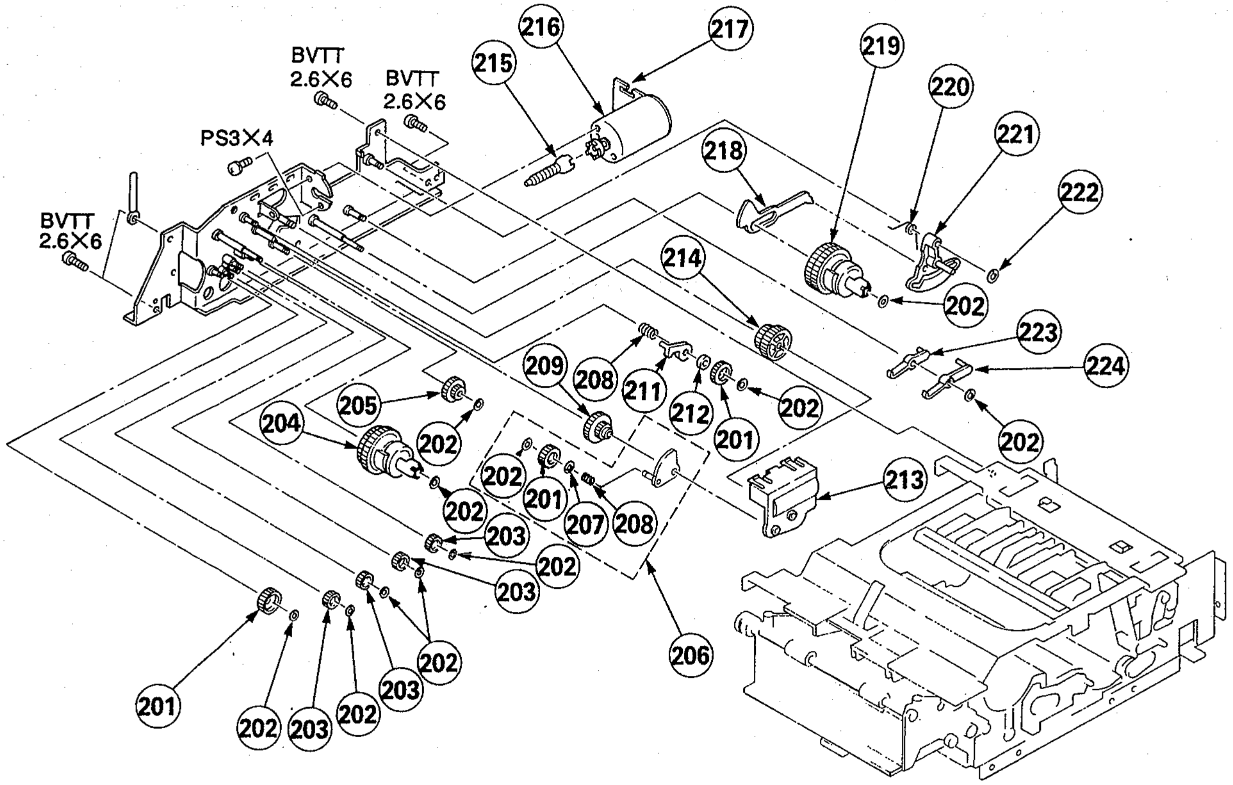
Ref.No	Part No.	Description	Remark
101	3-183-184-01	SPRING, EXTENSION	
102	3-183-185-02	LEVER, PAPER SENSOR	
103	3-325-697-01	WASHER	
104	3-183-240-01	GUIDE, EXIT	
105	3-183-253-01	GUIDE, TRAY	
106	3-183-181-01	SPRING, TRAY	
107	*A-8275-444-A	SW-42 BOARD, COMPLETE	
108	X-3167-310-1	COUNTREMEASURE ASSY	
109	3-183-610-01	COVER	
110	*A-8275-443-A	SW-39 BOARD, COMPLETE	
111	X-3167-307-1	SUB GEAR ASSY, BOSS	
112	4-926-219-02	RING (DIA.2.3), RETAINING	
113	3-950-038-01	GEAR, WORM	
114	X-3942-172-1	MOTOR ASSY, RIBBON	
115	*1-650-853-12	SU-10 BOARD	
116	X-3167-308-2	SUB ASSY, MOTOR BRACKET	
117	3-950-040-01	GEAR (2), RD	
118	3-950-039-01	GEAR (1), RD	
119	*A-8275-445-A	DUS-12 BOARD, COMPLETE	
120	3-183-228-02	LINK	
121	3-183-218-02	SPRING, TORSION	
122	3-183-251-02	ARM	
123	3-183-176-01	SPRING, EXTENSION	
124	3-183-229-02	LEVER, TRAY LOCK	
125	*A-8267-804-A	MD (P231) ASSY	
126	*A-8275-442-A	SW-41 BOARD, COMPLETE	
127	3-183-602-01	SPRING, TENSION COIL	
128	3-183-603-02	LEVER, SUPPORT	

5-4. MECHANISM DECK ASSEMBLY(1)


169
168
160
172
173
BVTT 2.6×6
PS3×4
BVTT 2.6×6
165
166
167
162
161
BVTT2.6×6
159
BVTT 2.6×6
BVTT2.6×6
158
PTPWH2
BVTT 2.6×6
163
165
170
164
171
155
154
153
151
156
BVTT2.6×6
BVTT2.6×6
155
154
152
153

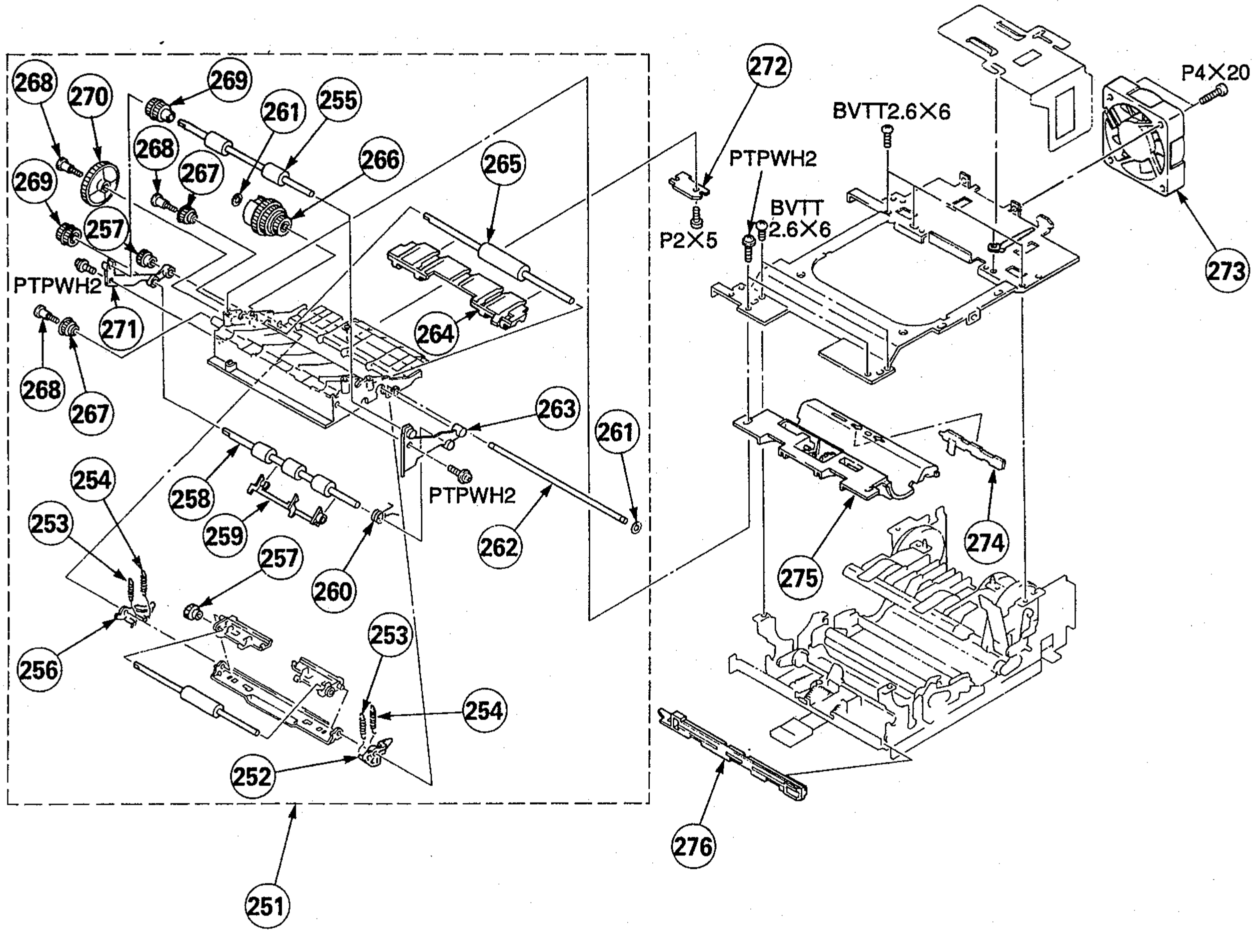
Ref.No	Part No.	Description	Remark
151	3-183-629-01	SPRING, COMPRESSION (PAPER A)	
152	3-183-605-01	SENSOR LEVER	
153	3-950-009-01	ROLLER, PAPER	
154	3-950-010-01	ARM, PAPER ROLLER	
155	3-950-013-01	SPRING, COMPRESSION	
156	3-183-609-02	GUIDE, UPPER	
158	*A-8275-441-A	SW-213 BOARD, COMPLETE	
159	X-3942-126-1	MOTOR ASSY, STEPPING	
160	*A-8275-496-A	HM-22P(H) BOARD, COMPLETE	
161	*3-952-505-01	GUARD, HEAD GEAR	
162	3-950-019-01	GEAR (A), HEAD DRIVE	
163	3-950-015-01	GEAR (B), HEAD DRIVE	
164	*3-950-020-01	SHAFT, HEAD DRIVE GEAR	
165	*3-950-017-01	HOLDER, HEAD DRIVE GEAR	
166	3-956-727-01	GEAR (E), HEAD DRIVE	
167	*3-950-214-01	SHAFT (S), HEAD DRIVE GEAR	
168	X-3942-122-1	MOTOR, HEAD DRIVE GEAR ASSY	
169	*A-8275-435-A	SW-215 BOARD, COMPLETE	
170	*A-8275-436-A	SW-212 BOARD, COMPLETE	
171	X-3167-377-1	GUIDE ASSY, CASSETTE ENTRANCE	
172	1-765-052-11	WIRE, FLAT TYPE (16 CORE)	
173	1-765-051-11	WIRE, FLAT TYPE (7 CORE)	

5-5. MECHANISM DECK ASSEMBLY(2)


BVTT
2.6X6
BVTT
2.6X6
PS3X4
BVTT
2.6X6
216
217
215
219
220
221
218
222
214
202
223
224
209
208
211
212
201
202
205
204
202
202
201
207
208
213
202
203
202
203
206
202
203
201
202
203
202

Ref.No	Part No.	Description	Remark
201	3-950-045-01	GEAR (20)	
202	3-681-678-00	WASHER, STOPPER	
203	3-949-935-01	GEAR (16)	
204	A-7018-137-A	REEL (T) BLOCK ASSY, RIBBON	
205	3-950-048-01	GEAR, SPM IDLER	
206	*A-7018-136-A	ARM BLOCK ASSY, PENDULUM	
207	3-701-441-01	WASHER	
208	3-949-933-01	SPRING (PENDULUM), COMPRESSION	
209	3-950-040-01	GEAR (2), RD	
211	*3-950-046-01	ARM, T LOCK	
212	3-950-051-01	FELT, T LOCK	
213	3-950-049-01	COVER, GEAR	
214	3-950-039-01	GEAR (1), RD	
215	3-183-992-01	GEAR, WORM	
216	X-3942-172-1	MOTOR ASSY, RIBBON	
217	*A-8275-440-A	SW-216 BOARD, COMPLETE	
218	*3-950-035-01	PLATE, SLIDE	
219	A-7018-138-A	REEL (S) BLOCK ASSY, RIBBON	
220	3-950-050-01	SPRING, TORSION	
221	*X-3942-127-1	ARM ASSY, SLIDE	
222	4-926-219-02	RING (DIA.2.3), RETAINING	
223	*3-950-037-01	CLAW, RIBBON BRAKE	
224	*3-950-036-01	CLAW, RIBBON LOCK	

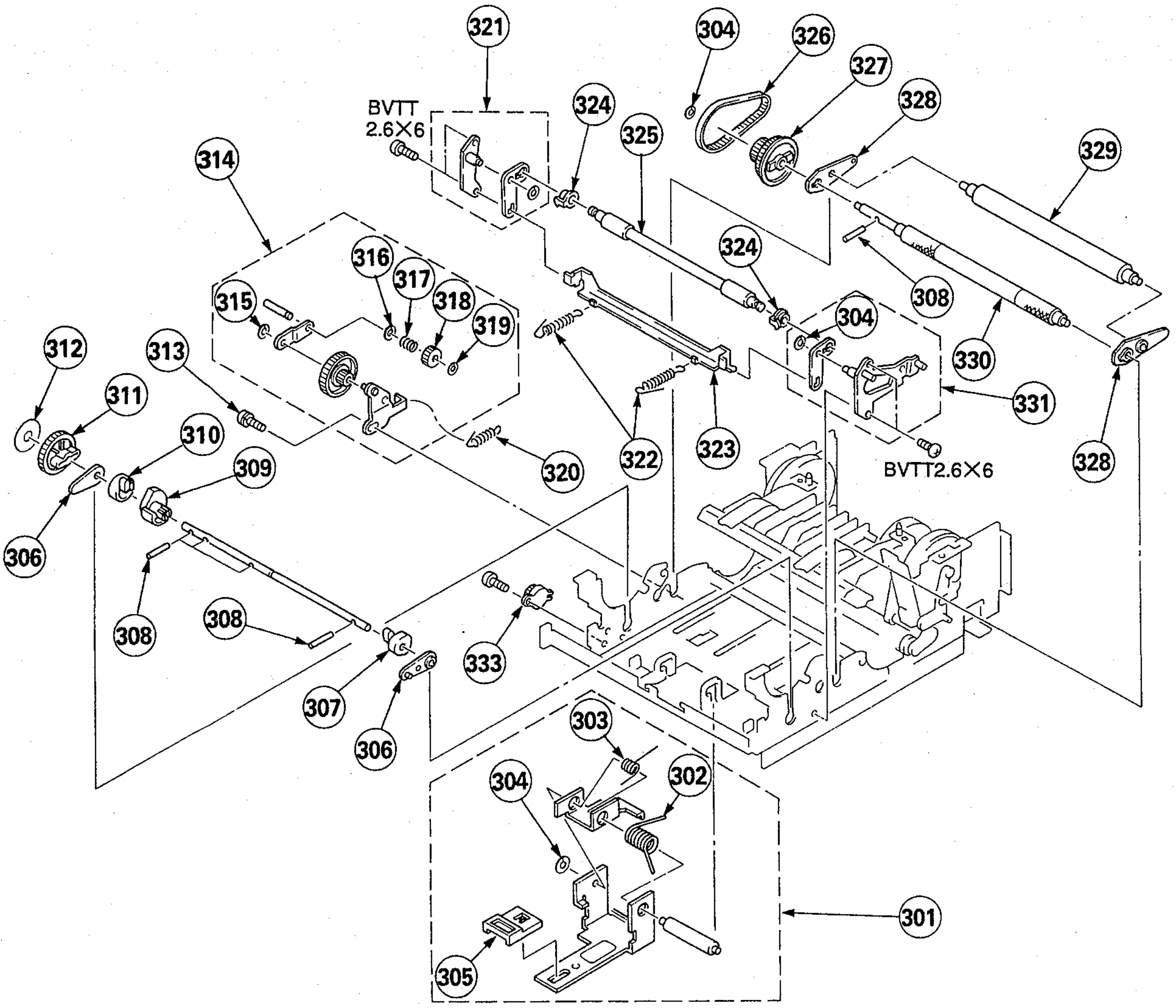
5-6. MECHANISM DECK ASSEMBLY(3)


268
270
269
261
255
268
267
266
265
269
257
PTPWH2
271
264
268
267
263
261
PTPWH2
254
258
253
259
257
262
260
256
253
254
252
251
272
BVTT2.6X6
PTPWH2
P2X5
BVTT
2.6X6
P4X20
273
274
275
276

Ref.No	Part No.	Description	Remark
251	*A-8267-975-B	PAPER ASSY	
252	*3-949-984-11	LEVER (R), RELEASE	
253	3-949-994-01	SPRING, TENSION	
254	3-949-996-01	SPRING (RELEASE LEVER),TENSION	
255	3-183-205-01	ROLLER	
256	*3-949-983-11	LEVER (L), RELEASE	
257	3-949-987-01	GEAR (16D)	
258	3-183-607-01	ROLLER K	
259	*3-949-986-01	RETAINER, PAPER	
260	3-183-204-01	SP (EP), RETAINER	
261	4-926-219-02	RING (DIA. 2. 3), RETAINING	
262	*3-949-990-01	SHAFT, LIMITER	
263	3-183-230-01	SHAFT RETAINER R (EP)	

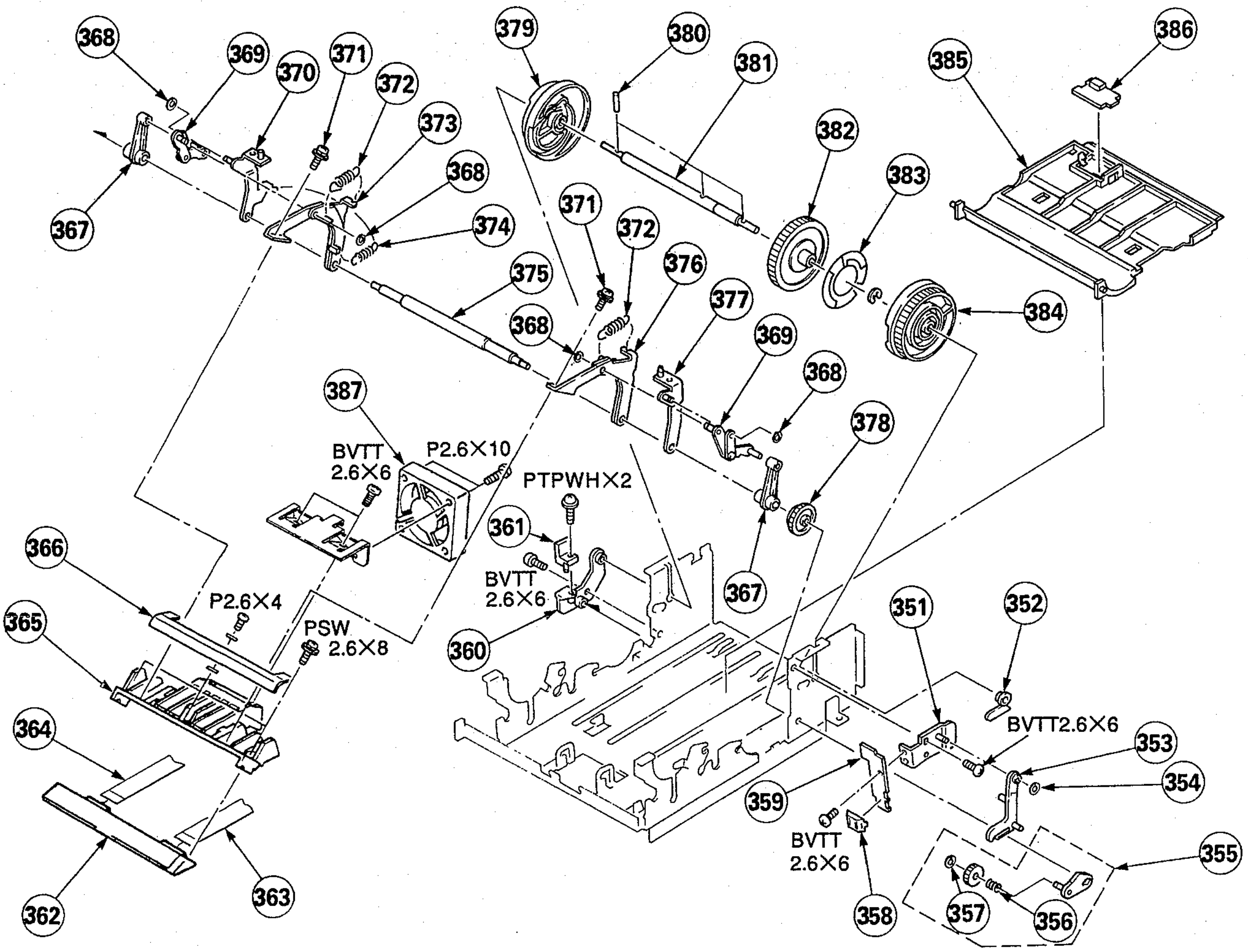
Ref.No	Part No.	Description	Remark
264	*3-949-985-01	SHUTTER, PAPER	
265	3-949-982-01	ROLLER (F)	
266	A-7018-141-A	LIMITER BLOCK ASSY	
267	3-949-989-01	GEAR (16F)	
268	3-950-001-01	SCREW, STEP	
269	3-949-988-01	GEAR (20-21)	
270	3-183-206-01	GEAR	
271	3-183-231-01	SHAFT RETAINER L (EP)	
272	*A-8275-433-A	COMPLETE PCB, SW-208	
273	1-541-684-41	MOTOR, DC	
274	*A-8275-434-A	SW-211 BOARD, COMPLETE	
275	*3-950-003-01	GUIDE (1), CASSETTE	
276	3-183-232-01	GUIDE, TRAY	

5-7. MECHANISM DECK ASSEMBLY(4)


321
304
326
327
328
329
BVTT
2.6X6
324
325
314
316
317
318
319
315
312
313
311
310
309
306
308
308
307
306
324
308
304
330
331
328
322
323
320
BVTT2.6X6
333
303
302
304
301
305

Ref.No	Part No.	Description	Remark
301	*A-8267-878-C	ARM ASSY	
302	3-183-212-02	TORSION SPRING	
303	3-183-213-03	TORSION SPRING	
304	4-926-219-02	RING (DIA.2.3), RETAINING	
305	3-183-209-02	LEVER	
306	*3-949-912-01	BEARING, PRESS	
307	*3-950-308-01	CAM (R), RETAINER ROLLER PRESS	
308	3-949-911-01	PIN	
309	3-183-216-01	CAM	
310	*3-949-948-01	CAM (L), RETAINER ROLLER PRESS	
311	3-949-951-01	GEAR, P DRIVING	
312	3-949-952-01	REFLECTOR, P SENSOR	
313	3-951-872-01	SCREW (2.6X6)	
314	A-7018-148-A	ARM BLOCK ASSY, TENSION	
315	3-669-596-01	WASHER (2. 3), STOPPER	
316	3-701-441-01	WASHER	
317	3-949-933-01	SPRING (PENDULUM), COMPRESSION	
318	3-949-935-01	GEAR (16)	
319	3-681-678-00	WASHER, STOP	
320	3-954-567-01	SPRING (TENSION PLATE),TENSION	
321	*A-7018-157-A	ARM (L) BLOCK ASSY, ROLLER	
322	3-955-157-01	SPRING, TENSION	
323	*3-949-939-01	PRESSURE, CAP	
324	3-949-937-01	BEARING, RETAINER ROLLER	
325	3-183-606-01	ROLLER, RETAINER	
326	3-949-915-01	BELT	
327	3-949-918-01	GEAR, CAPSTAN	
328	3-949-910-01	BEARING, PLATEN	
329	*3-949-908-01	ROLLER, PLATEN	
330	*3-949-907-01	ROLLER, CAPSTAN	
331	*A-7018-156-A	ARM (R) BLOCK ASSY, ROLLER	
333	4-036-880-01	DAMPER	

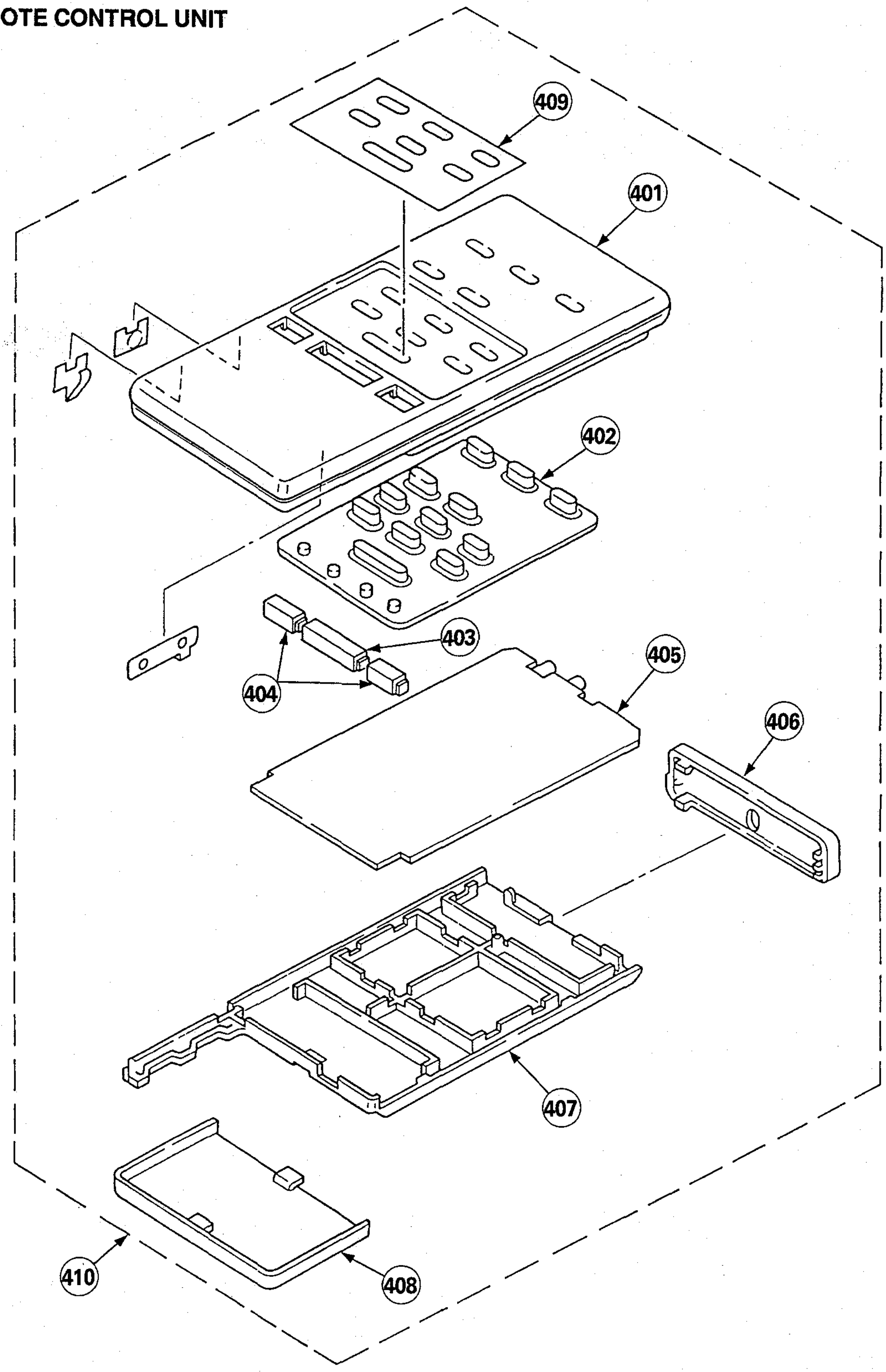
5-8. MECHANISM DECK ASSEMBLY(5)


368
369
370
371
372
373
368
374
367
379
380
381
382
383
385
386
384
371
372
375
376
377
368
369
368
378
387
BVTT
2.6X6
P2.6X10
PTPWHX2
361
BVTT
2.6X6
366
P2.6X4
365
PSW
2.6X8
360
367
351
352
BVTT2.6X6
353
354
364
359
BVTT
2.6X6
355
358
357
356
362
363

Ref.No	Part No.	Description	Remark
351	*X-3942-121-1	ARM ASSY, LOCK	
352	3-949-916-01	BEARING, CAM SHAFT	
353	*3-950-022-01	ARM, LOCK	
354	3-669-596-01	WASHER (2. 3), STOPPER	
355	A-7018-146-A	GEAR BLOCK ASSY, SWING	
356	3-949-933-01	SPRING (PENDULUM), COMPRESSION	
357	3-681-678-00	WASHER, STOP	
358	*3-952-169-01	COVER, SENSOR	
359	*A-8275-439-A	SW-210 BOARD, COMPLETE	
360	*3-949-974-01	BEARING, HEAD ARM SHAFT	
361	*A-8275-453-A	SW-214 BOARD, COMPLETE	
362	1-500-114-11	HEAD, THERMAL	
363	1-751-238-11	CABLE, FLAT (FHH-1)	
364	1-751-239-11	CABLE, FLAT (FHH-2)	
365	*3-183-612-01	HEAT SINK	
366	*3-950-142-01	GUIDE, RIBBON	
367	3-949-917-01	LEVER, POWER	
368	4-926-219-02	RING (DIA.2.3), RETAINING	

Ref.No	Part No.	Description	Remark
369	*X-3942-117-1	LINK ASSY	
370	*X-3942-119-1	FULCRUM (L) ASSY, LINK	
371	3-669-607-11	+PSW (SMALL ROUND) (2.6)	
372	3-954-605-01	SPRING (HEAD), TENSION	
373	*X-3942-160-1	ARM ASSY (L), POWER	
374	3-949-973-01	SPRING, TENSION	
375	*3-949-950-01	SHAFT, POWER ARM	
376	*X-3942-159-1	ARM ASSY (R), POWER	
377	*X-3942-118-1	FULCRUM (R) ASSY, LINK	
378	3-950-077-01	GEAR (A), RING SWING	
379	3-949-971-01	CAM (L), HEAD POWER”	
380	3-949-911-01	PIN	
381	*3-949-968-01	SHAFT, CAM	
382	3-949-969-01	GEAR (C), HEAD DRIVE	
383	3-949-972-01	PLATE, POSITION, HEAD	
384	3-949-970-01	CAM (R), HEAD POWER	
385	*3-949-909-01	GUIDE (2), CASSETTE	
386	*A-8275-452-A	SW-217 BOARD, COMPLETE	
387	1-698-019-31	MOTOR, DC (FAN)	

5-9. REMOTE CONTROL UNIT



Ref.No	Part No.	Description	Remark
401	9-901-744-01	ORNAMENTAL, PANEL	
402	9-901-745-01	SHEET, RUBBER	
403	2-290-632-00	BUTTON, PUSH (L)	
404	2-290-633-00	BUTTON, PUSH (R)	
405	9-997-457-01	SR-W2 BOARD	
406	9-997-453-01	PANEL, FRONT	
407	2-290-611-00	CASE, BOTTOM	
408	2-290-606-51	COVER, BATTERY	
409	9-997-456-01	LABEL, MODEL NUMBER	
410	1-465-508-21	COMMANDER, REMOTE	

SECTION 6
ELECTRICAL PARTS LIST

NOTE:

- Items marked "*" are not stocked because they are seldom required for routine servicing. Some delay should be expected when ordering these items.
- All variable and adjustable resistors have characteristic curve B, unless otherwise stated.

RESISTORS

- All resistors are in ohms.
- F:non-flammable

When indicating part by reference number, please include the board name.

CAPACITORS

- MF: μF, PF: μμF

COILS

- MMH: mH, UH: μH

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No	Part No.	Description			Remark
	*A-8275-527-A	VA-14 BOARD, COMPLETE **********************			
		<CAPACITOR>			
C1	1-126-607-11	ELECT	47uF	20%	4V
C2	1-126-607-11	ELECT	47uF	20%	4V
C3	1-163-038-00	CERAMIC	0.1uF		25V
C4	1-126-607-11	ELECT	47uF	20%	4V
C5	1-126-205-11	ELECT	47uF	20%	6.3V
C6	1-163-038-00	CERAMIC	0.1uF		25V
C7	1-126-205-11	ELECT	47uF	20%	6.3V
C8	1-163-038-00	CERAMIC	0.1uF		25V
C9	1-163-089-00	CERAMIC	6PF		50V
C10	1-163-089-00	CERAMIC	6PF		50V
C11	1-164-004-11	CERAMIC	0.1uF	10%	25V
C31	1-126-607-11	ELECT	47uF	20%	4V
C32	1-126-607-11	ELECT	47uF	20%	4V
C33	1-163-038-00	CERAMIC	0.1uF		25V
C34	1-126-607-11	ELECT	47uF	20%	4V
C35	1-126-205-11	ELECT	47uF	20%	6.3V
C36	1-163-038-00	CERAMIC	0.1uF		25V
C37	1-126-205-11	ELECT	47uF	20%	6.3V
C38	1-163-038-00	CERAMIC	0.1uF		25V
C39	1-163-089-00	CERAMIC	6PF	0.5PF	50V
C40	1-163-089-00	CERAMIC	6PF	0.5PF	50V
C41	1-164-004-11	CERAMIC	0.1uF	10%	25V
C61	1-126-607-11	ELECT	47uF	20%	4V
C62	1-126-607-11	ELECT	47uF	20%	4V
C63	1-163-038-00	CERAMIC	0.1uF		25V
C64	1-126-607-11	ELECT	47uF	20%	4V
C65	1-126-205-11	ELECT	47uF	20%	6.3V
C66	1-163-038-00	CERAMIC	0.1uF		25V
C67	1-126-205-11	ELECT	47uF	20%	6.3V
C68	1-163-038-00	CERAMIC	0.1uF		25V
C69	1-163-089-00	CERAMIC	6PF		50V
C70	1-163-089-00	CERAMIC	6PF		50V
C71	1-164-004-11	CERAMIC	0.1uF	10%	25V
C80	1-163-038-00	CERAMIC	0.1uF		25V
C81	1-163-038-00	CERAMIC	0.1uF		25V
C82	1-163-038-00	CERAMIC	0.1uF		25V
C83	1-126-607-11	ELECT	47uF	20%	4V
C84	1-163-263-11	CERAMIC	330PF	5%	50V
C85	1-163-038-00	CERAMIC	0.1uF		25V
C86	1-163-038-00	CERAMIC	0.1uF		25V
C87	1-126-607-11	ELECT	47uF	20%	4V
C88	1-126-607-11	ELECT	47uF	20%	4V
C89	1-163-038-00	CERAMIC	0.1uF		25V
C90	1-126-205-11	ELECT	47uF	20%	6.3V
C91	1-163-038-00	CERAMIC	0.1uF		25V
C92	1-163-038-00	CERAMIC	0.1uF		25V
C93	1-163-038-00	CERAMIC	0.1uF		25V
C94	1-163-038-00	CERAMIC	0.1uF		25V
C95	1-163-038-00	CERAMIC	0.1uF		25V
C96	1-128-065-11	ELECT	68uF	20%	10V
C97	1-126-206-11	ELECT	100uF	20%	6.3V
C98	1-126-206-11	ELECT	100uF	20%	6.3V
C99	1-163-038-00	CERAMIC	0.1uF		25V
C100	1-163-031-11	CERAMIC	0.01uF		50V
C101	1-126-607-11	ELECT	47uF	20%	4V
C102	1-163-031-11	CERAMIC	0.01uF		50V
C103	1-126-607-11	ELECT	47uF	20%	4V
C104	1-163-038-00	CERAMIC	0.1uF		25V
C105	1-163-038-00	CERAMIC	0.1uF		25V
C106	1-163-038-00	CERAMIC	0.1uF		25V
C107	1-163-038-00	CERAMIC	0.1uF		25V
C108	1-163-031-11	CERAMIC	0.01uF		50V
C109	1-126-607-11	ELECT	47uF	20%	4V
C110	1-163-038-00	CERAMIC	0.1uF		25V
C111	1-163-038-00	CERAMIC	0.1uF		25V
C112	1-126-209-11	ELECT	100uF	20%	4V
C113	1-126-607-11	ELECT	47uF	20%	4V
C114	1-163-038-00	CERAMIC	0.1uF		25V
C115	1-126-205-11	ELECT	47uF	20%	6.3V
C116	1-163-038-00	CERAMIC	0.1uF		25V
C117	1-126-193-11	ELECT	1uF	20%	50V
C118	1-163-263-11	CERAMIC	330PF	5%	50V
C119	1-126-193-11	ELECT	1uF	20%	50V
C120	1-164-161-11	CERAMIC	0.0022uF	10%	50V
C121	1-163-038-00	CERAMIC	0.1uF		25V
C122	1-163-251-11	CERAMIC	100PF	5%	50V
C124	1-163-275-11	CERAMIC	0.001uF	5%	50V
C125	1-126-602-11	ELECT	3.3uF	20%	50V
C126	1-163-038-00	CERAMIC	0.1uF		25V
C127	1-163-038-00	CERAMIC	0.1uF		25V
C128	1-126-205-11	ELECT	47uF	20%	6.3V
C129	1-126-607-11	ELECT	47uF	20%	4V
C130	1-163-087-00	CERAMIC	4PF		50V
C131	1-164-222-11	CERAMIC	0.22uF		25V
C132	1-126-193-11	ELECT	1uF	20%	50V
C133	1-126-205-11	ELECT	47uF	20%	6.3V
C134	1-163-038-00	CERAMIC	0.1uF		25V
C135	1-163-038-00	CERAMIC	0.1uF		25V
C136	1-163-227-11	CERAMIC	10PF		50V
C137	1-126-205-11	ELECT	47uF	20%	6.3V
C138	1-163-038-00	CERAMIC	0.1uF		25V
C139	1-163-038-00	CERAMIC	0.1uF		25V
C140	1-163-038-00	CERAMIC	0.1uF		25V
C141	1-163-038-00	CERAMIC	0.1uF		25V
C142	1-163-038-00	CERAMIC	0.1uF		25V

VA-14

Ref.No	Part No.	Description			Remark
C143	1-163-038-00	CERAMIC	0.1uF		25V
C144	1-163-038-00	CERAMIC	0.1uF		25V
C145	1-163-038-00	CERAMIC	0.1uF		25V
C146	1-163-038-00	CERAMIC	0.1uF		25V
C147	1-163-038-00	CERAMIC	0.1uF		25V
C148	1-163-038-00	CERAMIC	0.1uF		25V
C149	1-126-206-11	ELECT	100uF	20%	6.3V
C150	1-163-038-00	CERAMIC	0.1uF		25V
C152	1-126-603-11	ELECT	4.7uF	20%	35V
C153	1-163-031-11	CERAMIC	0.01uF		50V
C154	1-163-275-11	CERAMIC	0.001uF	5%	50V
C155	1-163-031-11	CERAMIC	0.01uF		50V
C156	1-163-031-11	CERAMIC	0.01uF		50V
C157	1-163-222-00	CERAMIC	5PF		50V
C158	1-163-031-11	CERAMIC	0.01uF		50V
C159	1-126-205-11	ELECT	47uF	20%	6.3V
C160	1-163-038-00	CERAMIC	0.1uF		25V
C161	1-126-205-11	ELECT	47uF	20%	6.3V
C162	1-126-205-11	ELECT	47uF	20%	6.3V
C163	1-163-038-00	CERAMIC	0.1uF		25V
C164	1-163-031-11	CERAMIC	0.01uF		50V
C165	1-126-607-11	ELECT	47uF	20%	4V
C166	1-163-089-00	CERAMIC	6PF		50V
C167	1-126-607-11	ELECT	47uF	20%	4V
C201	1-126-607-11	ELECT	47uF	20%	4V
C202	1-126-607-11	ELECT	47uF	20%	4V
C203	1-163-038-00	CERAMIC	0.1uF		25V
C204	1-163-038-00	CERAMIC	0.1uF		25V
C205	1-126-607-11	ELECT	47uF	20%	4V
C206	1-163-809-11	CERAMIC	0.047uF	10%	25V
C207	1-163-133-00	CERAMIC	470PF	5%	50V
C208	1-164-004-11	CERAMIC	0.1uF	10%	25V
C209	1-126-199-11	ELECT	6.8uF	20%	35V
C210	1-163-038-00	CERAMIC	0.1uF		25V
C211	1-163-038-00	CERAMIC	0.1uF		25V
C212	1-163-239-11	CERAMIC	33PF	5%	50V
C213	1-126-205-11	ELECT	47uF	20%	6.3V
C214	1-163-257-11	CERAMIC	180PF	5%	50V
C215	1-124-779-00	ELECT	10uF	20%	16V
C216	1-124-779-00	ELECT	10uF	20%	16V
C217	1-163-033-00	CERAMIC	0.022uF		50V
C218	1-126-205-11	ELECT	47uF	20%	6.3V
C219	1-163-038-00	CERAMIC	0.1uF		25V
C220	1-126-607-11	ELECT	47uF	20%	4V
C221	1-163-031-11	CERAMIC	0.01uF		50V
C222	1-163-275-11	CERAMIC	0.001uF	5%	50V
C223	1-163-038-00	CERAMIC	0.1uF		25V
C224	1-126-205-11	ELECT	47uF	20%	6.3V
C225	1-163-275-11	CERAMIC	0.001uF	5%	50V
C226	1-163-275-11	CERAMIC	0.001uF	5%	50V
C227	1-163-133-00	CERAMIC	470PF	5%	50V
C228	1-163-038-00	CERAMIC	0.1uF		25V
C229	1-163-038-00	CERAMIC	0.1uF		25V
C230	1-163-038-00	CERAMIC	0.1uF		25V
C231	1-126-209-11	ELECT	100uF	20%	4V
C232	1-163-038-00	CERAMIC	0.1uF		25V
C233	1-163-038-00	CERAMIC	0.1uF		25V
C234	1-163-038-00	CERAMIC	0.1uF		25V
C235	1-126-205-11	ELECT	47uF	20%	6.3V
C236	1-163-038-00	CERAMIC	0.1uF		25V
C237	1-163-809-11	CERAMIC	0.047uF	10%	25V
C238	1-163-809-11	CERAMIC	0.047uF	10%	25V
C239	1-164-489-11	CERAMIC	0.22uF	10%	16V
C240	1-164-489-11	CERAMIC	0.22uF	10%	16V
C241	1-163-038-00	CERAMIC	0.1uF		25V

Ref.No	Part No.	Description			Remark
C242	1-163-038-00	CERAMIC	0.1uF		25V
C243	1-126-603-11	ELECT	4.7uF	20%	35V
C244	1-164-346-11	CERAMIC	1uF		16V
C245	1-163-038-00	CERAMIC	0.1uF		25V
C246	1-163-038-00	CERAMIC	0.1uF		25V
C247	1-163-241-11	CERAMIC	39PF	5%	50V
C248	1-163-241-11	CERAMIC	39PF	5%	50V
C249	1-163-038-00	CERAMIC	0.1uF		25V
C250	1-163-038-00	CERAMIC	0.1uF		25V
C251	1-126-205-11	ELECT	47uF	20%	6.3V
C252	1-163-038-00	CERAMIC	0.1uF		25V
C253	1-163-235-11	CERAMIC	22PF	5%	50V
C254	1-163-235-11	CERAMIC	22PF	5%	50V
C255	1-163-038-00	CERAMIC	0.1uF		25V
C256	1-163-038-00	CERAMIC	0.1uF		25V
C257	1-163-038-00	CERAMIC	0.1uF		25V
C258	1-163-038-00	CERAMIC	0.1uF		25V
C259	1-126-205-11	ELECT	47uF	20%	6.3V
C260	1-163-038-00	CERAMIC	0.1uF		25V
C261	1-126-607-11	ELECT	47uF	20%	4V
C262	1-126-607-11	ELECT	47uF	20%	4V
C263	1-163-038-00	CERAMIC	0.1uF		25V
C264	1-126-607-11	ELECT	47uF	20%	4V
C265	1-126-607-11	ELECT	47uF	20%	4V
C266	1-126-607-11	ELECT	47uF	20%	4V
C267	1-163-243-11	CERAMIC	47PF	5%	50V
C268	1-163-038-00	CERAMIC	0.1uF		25V
C269	1-164-222-11	CERAMIC	0.22uF		25V
C270	1-163-097-00	CERAMIC	15PF	5%	50V
C271	1-126-209-11	ELECT	100uF	20%	4V
C272	1-163-038-00	CERAMIC	0.1uF		25V
C273	1-163-038-00	CERAMIC	0.1uF		25V
C274	1-163-038-00	CERAMIC	0.1uF		25V
C502	1-163-239-11	CERAMIC	33PF	5%	50V
C503	1-163-038-00	CERAMIC	0.1uF		25V
C504	1-163-241-11	CERAMIC	39PF	5%	50V
C505	1-163-243-11	CERAMIC	47PF	5%	50V
C506	1-163-038-00	CERAMIC	0.1uF		25V
C507	1-163-229-11	CERAMIC	12PF	5%	50V
C508	1-163-113-00	CERAMIC	68PF	5%	50V
C509	1-126-607-11	ELECT	47uF	20%	4V
C510	1-163-241-11	CERAMIC	39PF	5%	50V
C511	1-163-243-11	CERAMIC	47PF	5%	50V
C512	1-163-038-00	CERAMIC	0.1uF		25V
C513	1-163-135-00	CERAMIC	560PF	5%	50V
C514	1-126-217-11	ELECT	15uF	20%	10V
C515	1-163-038-00	CERAMIC	0.1uF		25V
C516	1-163-251-11	CERAMIC	100PF	5%	50V
C517	1-126-217-11	ELECT	15uF	20%	10V
C518	1-163-038-00	CERAMIC	0.1uF		25V
C519	1-163-009-11	CERAMIC	0.001uF	10%	50V
C520	1-126-205-11	ELECT	47uF	20%	6.3V
C521	1-163-038-00	CERAMIC	0.1uF		25V
C522	1-163-275-11	CERAMIC	0.001uF	5%	50V
C523	1-163-245-11	CERAMIC	56PF	5%	50V
C524	1-163-097-00	CERAMIC	15PF	5%	50V
C525	1-163-243-11	CERAMIC	47PF	5%	50V
C526	1-163-038-00	CERAMIC	0.1uF		25V
C527	1-126-205-11	ELECT	47uF	20%	6.3V
C528	1-163-275-11	CERAMIC	0.001uF	5%	50V
C529	1-163-038-00	CERAMIC	0.1uF		25V
C530	1-163-125-00	CERAMIC	220PF	5%	50V
C531	1-163-275-11	CERAMIC	0.001uF	5%	50V
C532	1-163-038-00	CERAMIC	0.1uF		25V
C533	1-163-038-00	CERAMIC	0.1uF		25V

Ref.No	Part No.	Description			Remark
C534	1-163-038-00	CERAMIC	0.1uF		25V
C535	1-163-275-11	CERAMIC	0.001uF	5%	50V
C536	1-164-004-11	CERAMIC	0.1uF	10%	25V
C537	1-163-038-00	CERAMIC	0.1uF		25V
C538	1-163-038-00	CERAMIC	0.1uF		25V
C539	1-163-275-11	CERAMIC	0.001uF	5%	50V
C540	1-163-038-00	CERAMIC	0.1uF		25V
C541	1-163-038-00	CERAMIC	0.1uF		25V
C542	1-164-489-11	CERAMIC	0.22uF	10%	16V
C543	1-163-275-11	CERAMIC	0.001uF	5%	50V
C544	1-163-038-00	CERAMIC	0.1uF		25V
C545	1-163-038-00	CERAMIC	0.1uF		25V
C546	1-126-205-11	ELECT	47uF	20%	6.3V
C547	1-126-205-11	ELECT	47uF	20%	6.3V
C548	1-163-038-00	CERAMIC	0.1uF		25V
C549	1-126-205-11	ELECT	47uF	20%	6.3V
C550	1-163-038-00	CERAMIC	0.1uF		25V
C551	1-126-205-11	ELECT	47uF	20%	6.3V
C552	1-164-489-11	CERAMIC	0.22uF	10%	16V
C554	1-163-038-00	CERAMIC	0.1uF		25V
C555	1-163-038-00	CERAMIC	0.1uF		25V
C561	1-163-227-11	CERAMIC	10PF		50V
C562	1-163-275-11	CERAMIC	0.001uF		50V
C563	1-163-038-00	CERAMIC	0.1uF		25V
C564	1-126-194-21	ELECT	1.5uF	20%	50V
C565	1-163-038-00	CERAMIC	0.1uF		25V
C566	1-163-227-11	CERAMIC	10PF		50V
C567	1-163-038-00	CERAMIC	0.1uF		25V
C701	1-163-038-00	CERAMIC	0.1uF		25V
C702	1-163-038-00	CERAMIC	0.1uF		25V
C703	1-126-205-11	ELECT	47uF	20%	6.3V
C704	1-163-038-00	CERAMIC	0.1uF		25V
C705	1-126-205-11	ELECT	47uF	20%	6.3V
C706	1-163-038-00	CERAMIC	0.1uF		25V
C707	1-126-205-11	ELECT	47uF	20%	6.3V
C708	1-126-205-11	ELECT	47uF	20%	6.3V
C709	1-163-038-00	CERAMIC	0.1uF		25V
C710	1-163-038-00	CERAMIC	0.1uF		25V
C711	1-126-205-11	ELECT	47uF	20%	6.3V
C712	1-126-205-11	ELECT	47uF	20%	6.3V
C713	1-163-038-00	CERAMIC	0.1uF		25V
C714	1-163-038-00	CERAMIC	0.1uF		25V
C715	1-163-038-00	CERAMIC	0.1uF		25V
C716	1-163-038-00	CERAMIC	0.1uF		25V
C718	1-163-038-00	CERAMIC	0.1uF		25V
C720	1-163-038-00	CERAMIC	0.1uF		25V
C721	1-164-232-11	CERAMIC	0.01uF	10%	50V
C722	1-163-038-00	CERAMIC	0.1uF		25V
C723	1-164-232-11	CERAMIC	0.01uF	10%	50V
C724	1-164-232-11	CERAMIC	0.01uF	10%	50V
C725	1-163-038-00	CERAMIC	0.1uF		25V
C726	1-164-232-11	CERAMIC	0.01uF	10%	50V
C727	1-164-232-11	CERAMIC	0.01uF	10%	50V
C728	1-163-038-00	CERAMIC	0.1uF		25V
C729	1-163-038-00	CERAMIC	0.1uF		25V
C730	1-164-232-11	CERAMIC	0.01uF	10%	50V
C731	1-163-038-00	CERAMIC	0.1uF		25V
C732	1-164-232-11	CERAMIC	0.01uF	10%	50V
C733	1-164-232-11	CERAMIC	0.01uF	10%	50V
C734	1-163-038-00	CERAMIC	0.1uF		25V
C735	1-163-038-00	CERAMIC	0.1uF		25V
C736	1-164-232-11	CERAMIC	0.01uF	10%	50V
C737	1-164-232-11	CERAMIC	0.01uF	10%	50V
C801	1-163-097-00	CERAMIC	15PF	5%	50V
C802	1-163-237-11	CERAMIC	27PF	5%	50V
C803	1-163-038-00	CERAMIC	0.1uF		25V
C804	1-126-205-11	ELECT	47uF	20%	6.3V
C805	1-163-229-11	CERAMIC	12PF	5%	50V
C806	1-163-113-00	CERAMIC	68PF	5%	50V
C807	1-163-038-00	CERAMIC	0.1uF		25V
C808	1-163-229-11	CERAMIC	12PF	5%	50V
C809	1-163-113-00	CERAMIC	68PF	5%	50V
C810	1-163-038-00	CERAMIC	0.1uF		25V
C811	1-163-229-11	CERAMIC	12PF	5%	50V
C812	1-163-113-00	CERAMIC	68PF	5%	50V
C813	1-163-038-00	CERAMIC	0.1uF		25V
C814	1-126-607-11	ELECT	47uF	20%	4V
C815	1-163-038-00	CERAMIC	0.1uF		25V
C816	1-163-038-00	CERAMIC	0.1uF		25V
C817	1-163-038-00	CERAMIC	0.1uF		25V
C818	1-163-038-00	CERAMIC	0.1uF		25V
C819	1-163-038-00	CERAMIC	0.1uF		25V
C820	1-126-607-11	ELECT	47uF	20%	4V
C821	1-163-038-00	CERAMIC	0.1uF		25V
C822	1-163-038-00	CERAMIC	0.1uF		25V
C823	1-163-038-00	CERAMIC	0.1uF		25V
C824	1-126-205-11	ELECT	47uF	20%	6.3V
C825	1-163-038-00	CERAMIC	0.1uF		25V
C826	1-163-038-00	CERAMIC	0.1uF		25V
C827	1-163-038-00	CERAMIC	0.1uF		25V
C828	1-126-205-11	ELECT	47uF	20%	6.3V
C829	1-163-038-00	CERAMIC	0.1uF		25V
C830	1-126-205-11	ELECT	47uF	20%	6.3V
C831	1-163-038-00	CERAMIC	0.1uF		25V
C832	1-163-038-00	CERAMIC	0.1uF		25V
C833	1-163-038-00	CERAMIC	0.1uF		25V
C834	1-126-607-11	ELECT	47uF	20%	4V
C835	1-126-607-11	ELECT	47uF	20%	4V
C836	1-163-038-00	CERAMIC	0.1uF		25V
C837	1-126-607-11	ELECT	47uF	20%	4V
C838	1-126-607-11	ELECT	47uF	20%	4V
C839	1-163-038-00	CERAMIC	0.1uF		25V
C840	1-126-607-11	ELECT	47uF	20%	4V
C841	1-163-038-00	CERAMIC	0.1uF		25V
C842	1-163-038-00	CERAMIC	0.1uF		25V
C843	1-126-607-11	ELECT	47uF	20%	4V
C844	1-163-097-00	CERAMIC	15PF	5%	50V
C845	1-163-227-11	CERAMIC	10PF		50V
C846	1-163-038-00	CERAMIC	0.1uF		25V
C847	1-163-038-00	CERAMIC	0.1uF		25V
C848	1-126-205-11	ELECT	47uF	20%	6.3V
C849	1-126-205-11	ELECT	47uF	20%	6.3V
C850	1-126-607-11	ELECT	47uF	20%	4V
C851	1-126-205-11	ELECT	47uF	20%	6.3V
C852	1-163-097-00	CERAMIC	15PF	5%	50V
C853	1-163-227-11	CERAMIC	10PF		50V
C854	1-163-038-00	CERAMIC	0.1uF		25V
C855	1-163-038-00	CERAMIC	0.1uF		25V
C856	1-126-205-11	ELECT	47uF	20%	6.3V
C857	1-126-205-11	ELECT	47uF	20%	6.3V
C858	1-126-607-11	ELECT	47uF	20%	4V
C859	1-163-097-00	CERAMIC	15PF	5%	50V
C860	1-163-227-11	CERAMIC	10PF		50V
C861	1-163-038-00	CERAMIC	0.1uF		25V
C862	1-163-038-00	CERAMIC	0.1uF		25V
C863	1-126-205-11	ELECT	47uF	20%	6.3V
C864	1-126-205-11	ELECT	47uF	20%	6.3V
C865	1-126-607-11	ELECT	47uF	20%	4V
C866	1-163-097-00	CERAMIC	15PF	5%	50V
C867	1-163-227-11	CERAMIC	10PF		50V

VA-14

Ref.No	Part No.	Description			Remark
C868	1-163-038-00	CERAMIC	0.1uF		25V
C869	1-163-038-00	CERAMIC	0.1uF		25V
C870	1-126-205-11	ELECT	47uF	20%	6.3V
C871	1-126-205-11	ELECT	47uF	20%	6.3V
C872	1-126-607-11	ELECT	47uF	20%	4V
C873	1-163-097-00	CERAMIC	15PF	5%	50V
C874	1-163-227-11	CERAMIC	10PF		50V
C875	1-163-038-00	CERAMIC	0.1uF		25V
C876	1-163-038-00	CERAMIC	0.1uF		25V
C877	1-126-205-11	ELECT	47uF	20%	6.3V
C878	1-126-205-11	ELECT	47uF	20%	6.3V
C879	1-163-038-00	CERAMIC	0.1uF		25V
C880	1-163-097-00	CERAMIC	15PF	5%	50V
C881	1-163-227-11	CERAMIC	10PF		50V
C882	1-163-038-00	CERAMIC	0.1uF		25V
C883	1-163-038-00	CERAMIC	0.1uF		25V
C884	1-126-205-11	ELECT	47uF	20%	6.3V
C885	1-126-205-11	ELECT	47uF	20%	6.3V
C886	1-126-217-11	ELECT	15uF	20%	10V
C887	1-163-087-00	CERAMIC	4PF		50V
C888	1-163-038-00	CERAMIC	0.1uF		25V
C889	1-163-038-00	CERAMIC	0.1uF		25V
C890	1-126-205-11	ELECT	47uF	20%	6.3V
C891	1-126-205-11	ELECT	47uF	20%	6.3V
C892	1-163-089-00	CERAMIC	6PF		50V
		<CONNECTOR>			
CN101	1-565-212-11	CONNECTOR, FPC (ZIF) 26P			
CN102	1-565-212-11	CONNECTOR, FPC (ZIF) 26P			
CN105	*1-560-892-00	PIN, CONNECTOR 4P			
CN501	1-506-473-11	PIN, CONNECTOR 8P			
CN502	1-506-471-11	PIN, CONNECTOR 6P			
CN504	1-506-473-11	PIN, CONNECTOR 8P			
CN505	1-506-470-11	PIN, CONNECTOR 5P			
CN506	1-506-472-11	PIN, CONNECTOR 7P			
		<CERAMIC, TRIMMER>			
CV501	1-141-423-61	CAP, ADJ			
CV502	1-141-423-61	CAP, ADJ			
CV503	1-141-423-61	CAP, ADJ			
CV801	1-141-423-61	CAP, ADJ			
		<DIODE>			
D81	8-719-800-76	DIODE 1SS226			
D91	8-719-800-76	DIODE 1SS226			
D100	8-719-800-76	DIODE 1SS226			
D101	8-719-800-76	DIODE 1SS226			
D201	8-719-400-18	DIODE 1SS184			
D501	8-713-300-88	DIODE 1T33C-01			
D502	8-713-300-88	DIODE 1T33C-01			
D701	8-719-400-18	DIODE 1SS184			
D702	8-719-400-18	DIODE 1SS184			
D703	8-719-400-18	DIODE 1SS184			
D704	8-719-400-18	DIODE 1SS184			
D705	8-719-400-18	DIODE 1SS184			
		<DELAY>			
DL201	1-415-313-00	DELAY LINE (1H)			
DL202	1-415-761-11	DELAY LINE, LC			
DL203	1-415-760-11	DELAY LINE, LC			
		<FILTER>			
FL1	1-239-564-11	FILTER, LOW PASS			
FL31	1-239-564-11	FILTER, LOW PASS			
FL61	1-239-564-11	FILTER, LOW PASS			
FL101	1-239-386-21	FILTER, BAND PASS (PAL, JOG)			
FL102	1-239-564-11	FILTER, LOW PASS			
FL103	1-239-563-11	FILTER, LOW PASS			
FL801	1-239-564-11	FILTER, LOW PASS			
FL803	1-239-386-21	FILTER, BAND PASS (PAL, JOG)			
		<IC>			
IC1	8-759-710-86	IC NJM2233BM			
IC31	8-759-710-86	IC NJM2233BM			
IC61	8-759-710-86	IC NJM2233BM			
IC81	8-759-008-45	IC MC74HC4538F			
IC82	8-759-710-86	IC NJM2233BM			
IC91	8-759-157-22	IC PQ06TZ1U			
IC92	8-759-157-17	IC PQ05SZ1U			
IC100	8-759-710-86	IC NJM2233BM			
IC101	8-759-710-86	IC NJM2233BM			
IC102	8-759-710-86	IC NJM2233BM			
IC103	8-759-710-86	IC NJM2233BM			
IC104	8-759-710-86	IC NJM2233BM			
IC105	8-759-514-57	IC BA7046F			
IC107	8-759-710-12	IC NJM2230M			
IC108	8-752-352-21	IC CXD2024Q			
IC109	8-759-711-62	IC NJM2240M			
IC201	8-752-053-21	IC CXA1211M			
IC202	8-752-039-91	IC CXA1437Q			
IC203	8-759-925-78	IC SN74HC10ANS			
IC204	8-759-926-18	IC SN74HC157ANS			
IC205	8-759-710-62	IC NJM2246M			
IC206	8-752-058-94	IC CXA1621S			
IC207	8-759-908-16	IC TL072CPS			
IC208	8-759-242-72	IC TC7W00F			
IC209	8-752-053-21	IC CXA1211M			
IC210	8-759-710-86	IC NJM2233BM			
IC501	8-752-326-08	IC CXD1159Q			
IC502	8-759-242-72	IC TC7W00F			
IC503	8-759-907-81	IC SN74LS221NS			
IC504	8-752-326-08	IC CXD1159Q			
IC505	8-759-907-81	IC SN74LS221NS			
IC506	8-759-011-65	IC MC74HC4053F			
IC507	8-759-981-48	IC TL082M			
IC508	8-759-981-48	IC TL082M			
IC509	8-759-926-77	IC SN74HC541ANS			
IC510	8-759-930-50	IC SN74LS157NS			
IC511	8-759-242-72	IC TC7W00F			
IC512	8-759-008-45	IC MC74HC4538F			
IC513	8-759-926-18	IC SN74HC157NS			
IC701	8-759-044-78	IC AK6420F			
IC702	8-759-635-27	IC M62352GP			
IC703	8-759-635-27	IC M62352GP			
IC704	8-759-635-27	IC M62352GP			
IC705	8-759-929-26	IC TL431CPS			
IC706	8-759-745-64	IC NJM4560M			
IC707	8-759-150-05	IC UPC324G2-E1			
IC708	8-759-150-05	IC UPC324G2-E1			
IC709	8-759-150-05	IC UPC324G2-E1			
IC801	8-759-254-98	IC M50555-218FP-TE2			
IC802	8-752-053-21	IC CXA1211M			
IC803	8-759-242-72	IC TC7W00F			
IC804	8-752-033-58	IC V7040			
IC805	8-752-053-21	IC CXA1211M			
IC806	8-752-053-21	IC CXA1211M			
IC807	8-752-053-21	IC CXA1211M			
IS406	*1-526-659-00	SOCKET, IC (DP) 28P			

Ref.No	Part No.	Description	Remark
		<JACK>	
J1	1-565-276-21	JACK, ULTRA SMALL 1P	
		<INDUCTOR>	
L1	1-410-369-11	INDUCTOR CHIP 1UH	
L2	1-410-369-11	INDUCTOR CHIP 1UH	
L31	1-410-369-11	INDUCTOR CHIP 1UH	
L32	1-410-369-11	INDUCTOR CHIP 1UH	
L61	1-410-369-11	INDUCTOR CHIP 1UH	
L62	1-410-369-11	INDUCTOR CHIP 1UH	
L91	1-410-369-11	INDUCTOR CHIP 1UH	
L92	1-424-090-11	COIL, LINE FILTER	
L93	1-424-090-11	COIL, LINE FILTER	
L94	1-424-090-11	COIL, LINE FILTER	
L100	1-410-369-11	INDUCTOR CHIP 1UH	
L101	1-410-369-11	INDUCTOR CHIP 1UH	
L102	1-410-369-11	INDUCTOR CHIP 1UH	
L103	1-410-369-11	INDUCTOR CHIP 1UH	
L104	1-410-369-11	INDUCTOR CHIP 1UH	
L106	1-410-369-11	INDUCTOR CHIP 1UH	
L107	1-410-369-11	INDUCTOR CHIP 1UH	
L201	1-410-369-11	INDUCTOR CHIP 1UH	
L202	1-410-369-11	INDUCTOR CHIP 1UH	
L203	1-410-369-11	INDUCTOR CHIP 1UH	
L204	1-410-369-11	INDUCTOR CHIP 1UH	
L205	1-410-387-21	INDUCTOR CHIP 33UH	
L206	1-412-005-11	INDUCTOR CHIP 8.2UH	
L207	1-410-987-11	INDUCTOR CHIP 0.33UH	
L501	1-410-389-31	INDUCTOR CHIP 47UH	
L502	1-410-388-21	INDUCTOR CHIP 39UH	
L503	1-410-387-21	INDUCTOR CHIP 33UH	
L504	1-410-389-31	INDUCTOR CHIP 47UH	
L505	1-410-388-21	INDUCTOR CHIP 39UH	
L506	1-410-369-11	INDUCTOR CHIP 1UH	
L507	1-410-377-31	INDUCTOR CHIP 4.7UH	
L508	1-410-369-11	INDUCTOR CHIP 1UH	
L509	1-410-369-11	INDUCTOR CHIP 1UH	
L513	1-410-369-11	INDUCTOR CHIP 1UH	
L514	1-414-439-11	INDUCTOR CHIP 2.7UH	
L802	1-410-369-11	INDUCTOR CHIP 1UH	
L806	1-410-369-11	INDUCTOR CHIP 1UH	
L807	1-410-369-11	INDUCTOR CHIP 1UH	
L808	1-410-369-11	INDUCTOR CHIP 1UH	
L809	1-410-369-11	INDUCTOR CHIP 1UH	
L810	1-410-369-11	INDUCTOR CHIP 1UH	
L811	1-410-369-11	INDUCTOR CHIP 1UH	
L812	1-410-369-11	INDUCTOR CHIP 1UH	
L813	1-410-369-11	INDUCTOR CHIP 1UH	
L814	1-410-369-11	INDUCTOR CHIP 1UH	
L815	1-410-369-11	INDUCTOR CHIP 1UH	
L816	1-410-369-11	INDUCTOR CHIP 1UH	
L817	1-410-369-11	INDUCTOR CHIP 1UH	
L818	1-410-369-11	INDUCTOR CHIP 1UH	
L819	1-410-369-11	INDUCTOR CHIP 1UH	
L820	1-410-369-11	INDUCTOR CHIP 1UH	
		<FILTER>	
LF1	1-239-581-21	FILTER, EMI	
LF31	1-239-581-21	FILTER, EMI	
LF61	1-239-581-21	FILTER, EMI	
LF81	1-239-581-21	FILTER, EMI	
LF100	1-239-581-21	FILTER, EMI	
LF101	1-239-581-21	FILTER, EMI	
LF102	1-239-581-21	FILTER, EMI	
LF801	1-239-581-21	FILTER, EMI	
LF802	1-239-581-21	FILTER, EMI	
LF803	1-239-581-21	FILTER, EMI	
LF804	1-239-581-21	FILTER, EMI	
LF805	1-239-581-21	FILTER, EMI	
LF806	1-239-581-21	FILTER, EMI	
LF807	1-239-581-21	FILTER, EMI	
		<TRANSISTOR>	
Q1	8-729-402-81	TRANSISTOR XN4501	
Q3	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q4	8-729-420-36	TRANSISTOR XN2501	
Q5	8-729-402-84	TRANSISTOR XN4601	
Q6	8-729-122-63	TRANSISTOR 2SA1226	
Q7	8-729-420-36	TRANSISTOR XN2501	
Q8	8-729-402-87	TRANSISTOR XN2401	
Q31	8-729-402-81	TRANSISTOR XN4501	
Q33	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q34	8-729-420-36	TRANSISTOR XN2501	
Q35	8-729-402-13	TRANSISTOR XN1501	
Q36	8-729-122-63	TRANSISTOR 2SA1226	
Q37	8-729-420-36	TRANSISTOR XN2501	
Q38	8-729-402-87	TRANSISTOR XN2401	
Q61	8-729-402-81	TRANSISTOR XN4501	
Q63	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q64	8-729-420-36	TRANSISTOR XN2501	
Q65	8-729-402-13	TRANSISTOR XN1501	
Q66	8-729-122-63	TRANSISTOR 2SA1226	
Q67	8-729-420-36	TRANSISTOR XN2501	
Q68	8-729-402-87	TRANSISTOR XN2401	
Q81	8-729-420-36	TRANSISTOR XN2501	
Q82	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q83	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q84	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q91	8-729-216-22	TRANSISTOR 2SA1162-G	
Q92	8-729-216-22	TRANSISTOR 2SA1162-G	
Q93	8-729-901-01	TRANSISTOR DTC144EK	
Q100	8-729-420-36	TRANSISTOR XN2501	
Q101	8-729-420-36	TRANSISTOR XN2501	
Q102	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q103	8-729-402-13	TRANSISTOR XN1501	
Q105	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q106	8-729-402-84	TRANSISTOR XN4601	
Q107	8-729-402-84	TRANSISTOR XN4601	
Q108	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q109	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q110	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q111	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q201	8-729-216-22	TRANSISTOR 2SA1162-G	
Q202	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q203	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q204	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q205	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q206	8-729-216-22	TRANSISTOR 2SA1162-G	
Q207	8-729-216-22	TRANSISTOR 2SA1162-G	
Q501	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q502	8-729-402-87	TRANSISTOR XN2401	
Q503	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q701	8-729-216-22	TRANSISTOR 2SA1162-G	
Q801	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q802	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q803	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q804	8-729-216-22	TRANSISTOR 2SA1162-G	
Q805	8-729-216-22	TRANSISTOR 2SA1162-G	

VA-14

Ref.No	Part No.	Description			Remark
Q806	8-729-402-13	TRANSISTOR XN1501			
Q807	8-729-122-63	TRANSISTOR 2SA1226			
Q808	8-729-420-36	TRANSISTOR XN2501			
Q809	8-729-402-87	TRANSISTOR XN2401			
Q810	8-729-402-13	TRANSISTOR XN1501			
Q811	8-729-122-63	TRANSISTOR 2SA1226			
Q812	8-729-420-36	TRANSISTOR XN2501			
Q813	8-729-402-87	TRANSISTOR XN2401			
Q814	8-729-402-13	TRANSISTOR XN1501			
Q815	8-729-122-63	TRANSISTOR 2SA1226			
Q816	8-729-420-36	TRANSISTOR XN2501			
Q817	8-729-402-87	TRANSISTOR XN2401			
Q818	8-729-402-13	TRANSISTOR XN1501			
Q819	8-729-122-63	TRANSISTOR 2SA1226			
Q820	8-729-420-36	TRANSISTOR XN2501			
Q821	8-729-402-87	TRANSISTOR XN2401			
Q822	8-729-402-13	TRANSISTOR XN1501			
Q823	8-729-122-63	TRANSISTOR 2SA1226			
Q824	8-729-420-36	TRANSISTOR XN2501			
Q825	8-729-402-87	TRANSISTOR XN2401			
Q826	8-729-402-13	TRANSISTOR XN1501			
Q827	8-729-122-63	TRANSISTOR 2SA1226			
Q828	8-729-420-36	TRANSISTOR XN2501			
Q829	8-729-402-87	TRANSISTOR XN2401			
Q830	8-729-402-84	TRANSISTOR XN4601			
Q831	8-729-402-84	TRANSISTOR XN4601			
		<RESISTOR>			
R1	1-216-081-00	METAL	22K	5%	1/10W
R2	1-216-081-00	METAL	22K	5%	1/10W
R3	1-216-081-00	METAL	22K	5%	1/10W
R4	1-216-025-00	METAL	100	5%	1/10W
R5	1-216-047-00	METAL	820	5%	1/10W
R6	1-216-647-11	METAL	680	0.50%	1/10W
R7	1-216-651-11	METAL	1K	0.50%	1/10W
R8	1-216-055-00	METAL	1.8K	5%	1/10W
R9	1-216-025-00	METAL	100	5%	1/10W
R10	1-216-057-00	METAL	2.2K	5%	1/10W
R11	1-216-025-00	METAL	100	5%	1/10W
R12	1-216-683-11	METAL	22K	0.50%	1/10W
R13	1-216-675-11	METAL	10K	0.50%	1/10W
R14	1-216-679-11	METAL	15K	0.50%	1/10W
R15	1-216-057-00	METAL	2.2K	5%	1/10W
R16	1-216-651-11	METAL	1K	0.50%	1/10W
R17	1-216-651-11	METAL	1K	0.50%	1/10W
R18	1-216-033-00	METAL	220	5%	1/10W
R19	1-216-051-00	METAL	1.2K	5%	1/10W
R20	1-216-057-00	METAL	2.2K	5%	1/10W
R21	1-216-647-11	METAL	680	0.50%	1/10W
R22	1-216-661-11	METAL	2.7K	0.50%	1/10W
R23	1-216-053-00	METAL	1.5K	5%	1/10W
R24	1-216-309-00	METAL	5.6	5%	1/10W
R25	1-216-309-00	METAL	5.6	5%	1/10W
R26	1-216-009-00	METAL	22	5%	1/10W
R27	1-216-001-00	METAL	10	5%	1/10W
R28	1-216-057-00	METAL	2.2K	5%	1/10W
R29	1-216-033-00	METAL	220	5%	1/10W
R31	1-216-081-00	METAL	22K	5%	1/10W
R32	1-216-081-00	METAL	22K	5%	1/10W
R33	1-216-081-00	METAL	22K	5%	1/10W
R34	1-216-025-00	METAL	100	5%	1/10W
R35	1-216-047-00	METAL	820	5%	1/10W
R36	1-216-647-11	METAL	680	0.50%	1/10W

Ref.No	Part No.	Description			Remark
R37	1-216-651-11	METAL	1K	0.50%	1/10W
R38	1-216-055-00	METAL	1.8K	5%	1/10W
R39	1-216-025-00	METAL	100	5%	1/10W
R40	1-216-057-00	METAL	2.2K	5%	1/10W
R41	1-216-025-00	METAL	100	5%	1/10W
R42	1-216-683-11	METAL	22K	0.50%	1/10W
R43	1-216-675-11	METAL	10K	0.50%	1/10W
R44	1-216-679-11	METAL	15K	0.50%	1/10W
R45	1-216-057-00	METAL	2.2K	5%	1/10W
R46	1-216-651-11	METAL	1K	0.50%	1/10W
R47	1-216-651-11	METAL	1K	0.50%	1/10W
R48	1-216-033-00	METAL	220	5%	1/10W
R49	1-216-051-00	METAL	1.2K	5%	1/10W
R50	1-216-057-00	METAL	2.2K	5%	1/10W
R51	1-216-647-11	METAL	680	0.50%	1/10W
R52	1-216-661-11	METAL	2.7K	0.50%	1/10W
R53	1-216-053-00	METAL	1.5K	5%	1/10W
R54	1-216-309-00	METAL	5.6	5%	1/10W
R55	1-216-309-00	METAL	5.6	5%	1/10W
R56	1-216-009-00	METAL	22	5%	1/10W
R57	1-216-073-00	METAL	10K	5%	1/10W
R59	1-216-033-00	METAL	220	5%	1/10W
R60	1-216-033-00	METAL	220	5%	1/10W
R61	1-216-081-00	METAL	22K	5%	1/10W
R62	1-216-081-00	METAL	22K	5%	1/10W
R63	1-216-081-00	METAL	22K	5%	1/10W
R64	1-216-025-00	METAL	100	5%	1/10W
R65	1-216-047-00	METAL	820	5%	1/10W
R66	1-216-647-11	METAL	680	0.50%	1/10W
R67	1-216-651-11	METAL	1K	0.50%	1/10W
R68	1-216-055-00	METAL	1.8K	5%	1/10W
R69	1-216-025-00	METAL	100	5%	1/10W
R70	1-216-057-00	METAL	2.2K	5%	1/10W
R71	1-216-025-00	METAL	100	5%	1/10W
R72	1-216-683-11	METAL	22K	0.50%	1/10W
R73	1-216-675-11	METAL	10K	0.50%	1/10W
R74	1-216-679-11	METAL	15K	0.50%	1/10W
R75	1-216-057-00	METAL	2.2K	5%	1/10W
R76	1-216-651-11	METAL	1K	0.50%	1/10W
R77	1-216-651-11	METAL	1K	0.50%	1/10W
R78	1-216-033-00	METAL	220	5%	1/10W
R79	1-216-051-00	METAL	1.2K	5%	1/10W
R80	1-216-057-00	METAL	2.2K	5%	1/10W
R81	1-216-647-11	METAL	680	0.50%	1/10W
R82	1-216-661-11	METAL	2.7K	0.50%	1/10W
R83	1-216-053-00	METAL	1.5K	5%	1/10W
R84	1-216-309-00	METAL	5.6	5%	1/10W
R85	1-216-309-00	METAL	5.6	5%	1/10W
R86	1-216-009-00	METAL	22	5%	1/10W
R87	1-216-057-00	METAL	2.2K	5%	1/10W
R88	1-216-057-00	METAL	2.2K	5%	1/10W
R89	1-216-067-00	METAL	5.6K	5%	1/10W
R90	1-216-063-00	METAL	3.9K	5%	1/10W
R91	1-216-025-00	METAL	100	5%	1/10W
R92	1-216-043-00	METAL	560	5%	1/10W
R93	1-216-081-00	METAL	22K	5%	1/10W
R94	1-216-057-00	METAL	2.2K	5%	1/10W
R95	1-216-057-00	METAL	2.2K	5%	1/10W
R96	1-216-089-91	METAL	47K	5%	1/10W
R97	1-216-073-00	METAL	10K	5%	1/10W
R98	1-216-097-00	METAL	100K	5%	1/10W
R99	1-216-075-00	METAL	12K	5%	1/10W
R100	1-216-081-00	METAL	22K	5%	1/10W
R101	1-216-081-00	METAL	22K	5%	1/10W
R102	1-216-025-00	METAL	100	5%	1/10W

Ref.No	Part No.	Description			Remark
R103	1-216-025-00	METAL	100	5%	1/10W
R104	1-216-077-00	METAL	15K	5%	1/10W
R105	1-216-083-00	METAL	27K	5%	1/10W
R106	1-216-077-00	METAL	15K	5%	1/10W
R107	1-216-083-00	METAL	27K	5%	1/10W
R108	1-216-057-00	METAL	2.2K	5%	1/10W
R109	1-216-057-00	METAL	2.2K	5%	1/10W
R110	1-216-047-00	METAL	820	5%	1/10W
R111	1-216-027-00	METAL	120	5%	1/10W
R112	1-216-051-00	METAL	1.2K	5%	1/10W
R113	1-216-037-00	METAL	330	5%	1/10W
R114	1-216-113-00	METAL	470K	5%	1/10W
R115	1-216-073-00	METAL	10K	5%	1/10W
R116	1-216-073-00	METAL	10K	5%	1/10W
R117	1-216-113-00	METAL	470K	5%	1/10W
R118	1-216-099-00	METAL	120K	5%	1/10W
R119	1-216-081-00	METAL	22K	5%	1/10W
R120	1-216-025-00	METAL	100	5%	1/10W
R121	1-216-083-00	METAL	27K	5%	1/10W
R122	1-216-073-00	METAL	10K	5%	1/10W
R123	1-216-049-00	METAL	1K	5%	1/10W
R124	1-216-651-11	METAL	1K	0.50%	1/10W
R125	1-216-651-11	METAL	1K	0.50%	1/10W
R126	1-216-057-00	METAL	2.2K	5%	1/10W
R127	1-216-053-00	METAL	1.5K	5%	1/10W
R128	1-216-049-00	METAL	1K	5%	1/10W
R129	1-216-051-00	METAL	1.2K	5%	1/10W
R130	1-216-039-00	METAL	390	5%	1/10W
R131	1-216-057-00	METAL	2.2K	5%	1/10W
R132	1-216-025-00	METAL	100	5%	1/10W
R133	1-216-017-00	METAL	47	5%	1/10W
R134	1-216-025-00	METAL	100	5%	1/10W
R135	1-216-057-00	METAL	2.2K	5%	1/10W
R136	1-216-057-00	METAL	2.2K	5%	1/10W
R137	1-216-029-00	METAL	150	5%	1/10W
R138	1-216-029-00	METAL	150	5%	1/10W
R139	1-216-295-11	METAL	0	5%	1/10W
R140	1-216-295-11	METAL	0	5%	1/10W
R143	1-216-057-00	METAL	2.2K	5%	1/10W
R144	1-216-055-00	METAL	1.8K	5%	1/10W
R145	1-216-055-00	METAL	1.8K	5%	1/10W
R146	1-216-057-00	METAL	2.2K	5%	1/10W
R147	1-216-061-00	METAL	3.3K	5%	1/10W
R148	1-216-041-00	METAL	470	5%	1/10W
R149	1-216-025-00	METAL	100	5%	1/10W
R150	1-216-061-00	METAL	3.3K	5%	1/10W
R151	1-216-025-00	METAL	100	5%	1/10W
R152	1-216-025-00	METAL	100	5%	1/10W
R153	1-216-055-00	METAL	1.8K	5%	1/10W
R154	1-216-043-00	METAL	560	5%	1/10W
R155	1-216-043-00	METAL	560	5%	1/10W
R156	1-216-059-00	METAL	2.7K	5%	1/10W
R157	1-216-038-00	METAL	360	5%	1/10W
R158	1-216-651-11	METAL	1K	0.50%	1/10W
R159	1-216-057-00	METAL	2.2K	5%	1/10W
R160	1-216-651-11	METAL	1K	0.50%	1/10W
R161	1-216-057-00	METAL	2.2K	5%	1/10W
R162	1-216-651-11	METAL	1K	0.50%	1/10W
R163	1-216-057-00	METAL	2.2K	5%	1/10W
R164	1-216-651-11	METAL	1K	0.50%	1/10W
R165	1-216-057-00	METAL	2.2K	5%	1/10W
R166	1-216-083-00	METAL	27K	5%	1/10W
R168	1-216-295-11	METAL	0K	5%	1/10W
R169	1-216-061-00	METAL	3.3K	5%	1/10W
R170	1-216-025-00	METAL	100	5%	1/10W
R171	1-216-025-00	METAL	100	5%	1/10W
R172	1-216-025-00	METAL	100	5%	1/10W
R173	1-216-025-00	METAL	100	5%	1/10W
R201	1-216-113-00	METAL	470K	5%	1/10W
R202	1-216-075-00	METAL	12K	5%	1/10W
R203	1-216-099-00	METAL	120K	5%	1/10W
R204	1-216-097-00	METAL	100K	5%	1/10W
R205	1-216-037-00	METAL	330	5%	1/10W
R206	1-216-049-00	METAL	1K	5%	1/10W
R207	1-216-049-00	METAL	1K	5%	1/10W
R208	1-216-025-00	METAL	100	5%	1/10W
R209	1-216-101-00	METAL	150K	5%	1/10W
R211	1-216-295-11	METAL	0	5%	1/10W
R212	1-216-081-00	METAL	22K	5%	1/10W
R213	1-216-057-00	METAL	2.2K	5%	1/10W
R214	1-216-057-00	METAL	2.2K	5%	1/10W
R215	1-216-049-00	METAL	1K	5%	1/10W
R216	1-216-051-00	METAL	1.2K	5%	1/10W
R217	1-216-053-00	METAL	1.5K	5%	1/10W
R218	1-216-039-00	METAL	390	5%	1/10W
R219	1-216-039-00	METAL	390	5%	1/10W
R220	1-216-111-00	METAL	390K	5%	1/10W
R221	1-216-103-91	METAL	180K	5%	1/10W
R225	1-216-017-00	METAL	47	5%	1/10W
R226	1-216-057-00	METAL	2.2K	5%	1/10W
R227	1-216-053-00	METAL	1.5K	5%	1/10W
R229	1-216-073-00	METAL	10K	5%	1/10W
R230	1-216-693-11	METAL	56K	0.50%	1/10W
R231	1-216-063-00	METAL	3.9K	5%	1/10W
R232	1-216-055-00	METAL	1.8K	5%	1/10W
R233	1-216-097-00	METAL	100K	5%	1/10W
R234	1-216-077-00	METAL	15K	5%	1/10W
R236	1-216-677-11	METAL	12K	0.50%	1/10W
R237	1-216-675-11	METAL	10K	0.50%	1/10W
R238	1-216-067-00	METAL	5.6K	5%	1/10W
R239	1-216-073-00	METAL	10K	5%	1/10W
R240	1-216-025-00	METAL	100	5%	1/10W
R241	1-216-073-00	METAL	10K	5%	1/10W
R242	1-216-049-00	METAL	1K	5%	1/10W
R243	1-216-049-00	METAL	1K	5%	1/10W
R244	1-216-063-00	METAL	3.9K	5%	1/10W
R245	1-216-053-00	METAL	1.5K	5%	1/10W
R246	1-216-053-00	METAL	1.5K	5%	1/10W
R247	1-216-025-00	METAL	100	5%	1/10W
R248	1-216-045-00	METAL	680	5%	1/10W
R249	1-216-049-00	METAL	1K	5%	1/10W
R250	1-216-025-00	METAL	100	5%	1/10W
R251	1-216-049-00	METAL	1K	5%	1/10W
R252	1-216-025-00	METAL	100	5%	1/10W
R253	1-216-049-00	METAL	1K	5%	1/10W
R254	1-216-049-00	METAL	1K	5%	1/10W
R255	1-216-065-00	METAL	4.7K	5%	1/10W
R256	1-216-065-00	METAL	4.7K	5%	1/10W
R257	1-216-025-00	METAL	100	5%	1/10W
R258	1-216-025-00	METAL	100	5%	1/10W
R259	1-216-045-00	METAL	680	5%	1/10W
R262	1-216-651-11	METAL	1K	0.50%	1/10W
R263	1-216-655-11	METAL	1.5K	0.50%	1/10W
R264	1-216-651-11	METAL	1K	0.50%	1/10W
R501	1-216-049-00	METAL	1K	5%	1/10W
R503	1-216-057-00	METAL	2.2K	5%	1/10W
R504	1-216-057-00	METAL	2.2K	5%	1/10W
R505	1-216-049-00	METAL	1K	5%	1/10W
R506	1-216-049-00	METAL	1K	5%	1/10W
R507	1-216-048-00	METAL	910	5%	1/10W

VA-14

Ref.No	Part No.	Description			Remark
R508	1-216-027-00	METAL	120	5%	1/10W
R509	1-216-057-00	METAL	2.2K	5%	1/10W
R510	1-216-065-00	METAL	4.7K	5%	1/10W
R511	1-216-037-00	METAL	330	5%	1/10W
R512	1-216-065-00	METAL	4.7K	5%	1/10W
R513	1-216-057-00	METAL	2.2K	5%	1/10W
R514	1-216-073-00	METAL	10K	5%	1/10W
R515	1-216-049-00	METAL	1K	5%	1/10W
R516	1-216-025-00	METAL	100	5%	1/10W
R517	1-216-057-00	METAL	2.2K	5%	1/10W
R518	1-216-073-00	METAL	10K	5%	1/10W
R519	1-216-049-00	METAL	1K	5%	1/10W
R520	1-216-053-00	METAL	1.5K	5%	1/10W
R521	1-216-073-00	METAL	10K	5%	1/10W
R522	1-216-085-00	METAL	33K	5%	1/10W
R523	1-216-081-00	METAL	22K	5%	1/10W
R524	1-216-033-00	METAL	220	5%	1/10W
R525	1-216-049-00	METAL	1K	5%	1/10W
R526	1-216-049-00	METAL	1K	5%	1/10W
R528	1-216-657-11	METAL	1.8K	0.50%	1/10W
R529	1-216-089-91	METAL	47K	5%	1/10W
R530	1-216-051-00	METAL	1.2K	5%	1/10W
R531	1-216-085-00	METAL	33K	5%	1/10W
R532	1-216-027-00	METAL	120	5%	1/10W
R533	1-216-069-00	METAL	6.8K	5%	1/10W
R534	1-216-077-00	METAL	15K	5%	1/10W
R535	1-216-033-00	METAL	220	5%	1/10W
R536	1-216-039-00	METAL	390	5%	1/10W
R537	1-216-063-00	METAL	3.9K	5%	1/10W
R538	1-216-077-00	METAL	15K	5%	1/10W
R539	1-216-089-91	METAL	47K	5%	1/10W
R540	1-216-095-91	METAL	82K	5%	1/10W
R541	1-216-097-00	METAL	100K	5%	1/10W
R562	1-216-097-00	METAL	100K	5%	1/10W
R563	1-216-073-00	METAL	10K	5%	1/10W
R565	1-216-105-00	METAL	220K	5%	1/10W
R566	1-216-073-00	METAL	10K	5%	1/10W
R567	1-216-295-11	METAL	0	5%	1/10W
R568	1-216-033-00	METAL	220	5%	1/10W
R569	1-216-033-00	METAL	220	5%	1/10W
R570	1-216-019-00	METAL	56	5%	1/10W
R701	1-216-025-00	METAL	100	5%	1/10W
R702	1-216-625-11	METAL	82	0.50%	1/10W
R703	1-216-629-11	METAL	120	0.50%	1/10W
R704	1-216-631-11	METAL	150	0.50%	1/10W
R705	1-216-651-11	METAL	1K	0.50%	1/10W
R706	1-216-081-00	METAL	22K	5%	1/10W
R707	1-216-651-11	METAL	1K	0.50%	1/10W
R708	1-216-081-00	METAL	22K	5%	1/10W
R709	1-216-651-11	METAL	1K	0.50%	1/10W
R710	1-216-081-00	METAL	22K	5%	1/10W
R711	1-216-651-11	METAL	1K	0.50%	1/10W
R712	1-216-081-00	METAL	22K	5%	1/10W
R713	1-216-691-11	METAL	47K	0.50%	1/10W
R714	1-216-675-11	METAL	10K	0.50%	1/10W
R715	1-216-691-11	METAL	47K	0.50%	1/10W
R716	1-216-693-11	METAL	56K	0.50%	1/10W
R717	1-216-691-11	METAL	47K	0.50%	1/10W
R718	1-216-693-11	METAL	56K	0.50%	1/10W
R719	1-216-691-11	METAL	47K	0.50%	1/10W
R720	1-216-693-11	METAL	56K	0.50%	1/10W
R721	1-216-655-11	METAL	1.5K	0.50%	1/10W
R722	1-216-049-00	METAL	1K	5%	1/10W
R723	1-216-659-11	METAL	2.2K	0.50%	1/10W
R724	1-216-660-11	METAL	2.4K	0.50%	1/10W

Ref.No	Part No.	Description			Remark
R725	1-216-049-00	METAL	1K	5%	1/10W
R726	1-216-049-00	METAL	1K	5%	1/10W
R727	1-216-659-11	METAL	2.2K	0.50%	1/10W
R728	1-216-660-11	METAL	2.4K	0.50%	1/10W
R729	1-216-655-11	METAL	1.5K	0.50%	1/10W
R730	1-216-655-11	METAL	1.5K	0.50%	1/10W
R731	1-216-659-11	METAL	2.2K	0.50%	1/10W
R732	1-216-660-11	METAL	2.4K	0.50%	1/10W
R733	1-216-049-00	METAL	1K	5%	1/10W
R734	1-216-081-00	METAL	22K	5%	1/10W
R735	1-216-073-00	METAL	10K	5%	1/10W
R736	1-216-073-00	METAL	10K	5%	1/10W
R737	1-216-073-00	METAL	10K	5%	1/10W
R738	1-216-687-11	METAL	33K	0.50%	1/10W
R739	1-216-073-00	METAL	10K	5%	1/10W
R740	1-216-687-11	METAL	33K	0.50%	1/10W
R741	1-216-085-00	METAL	33K	5%	1/10W
R742	1-216-073-00	METAL	10K	5%	1/10W
R745	1-216-295-11	METAL	0	5%	1/10W
R746	1-216-295-11	METAL	0	5%	1/10W
R747	1-216-687-11	METAL	33K	0.50%	1/10W
R801	1-216-049-00	METAL	1K	5%	1/10W
R802	1-216-043-00	METAL	560	5%	1/10W
R803	1-216-041-00	METAL	470	5%	1/10W
R804	1-216-049-00	METAL	1K	5%	1/10W
R805	1-216-043-00	METAL	560	5%	1/10W
R806	1-216-041-00	METAL	470	5%	1/10W
R807	1-216-049-00	METAL	1K	5%	1/10W
R808	1-216-043-00	METAL	560	5%	1/10W
R809	1-216-041-00	METAL	470	5%	1/10W
R810	1-216-049-00	METAL	1K	5%	1/10W
R811	1-216-025-00	METAL	100	5%	1/10W
R812	1-216-057-00	METAL	2.2K	5%	1/10W
R813	1-216-049-00	METAL	1K	5%	1/10W
R814	1-216-025-00	METAL	100	5%	1/10W
R815	1-216-057-00	METAL	2.2K	5%	1/10W
R816	1-216-049-00	METAL	1K	5%	1/10W
R817	1-216-025-00	METAL	100	5%	1/10W
R818	1-216-057-00	METAL	2.2K	5%	1/10W
R820	1-216-025-00	METAL	100	5%	1/10W
R821	1-216-025-00	METAL	100	5%	1/10W
R822	1-216-049-00	METAL	1K	5%	1/10W
R823	1-216-025-00	METAL	100	5%	1/10W
R824	1-216-049-00	METAL	1K	5%	1/10W
R825	1-216-049-00	METAL	1K	5%	1/10W
R826	1-216-049-00	METAL	1K	5%	1/10W
R827	1-216-651-11	METAL	1K	0.50%	1/10W
R828	1-216-651-11	METAL	1K	0.50%	1/10W
R829	1-216-651-11	METAL	1K	0.50%	1/10W
R830	1-216-651-11	METAL	1K	0.50%	1/10W
R831	1-216-659-11	METAL	2.2K	0.50%	1/10W
R832	1-216-659-11	METAL	2.2K	0.50%	1/10W
R833	1-216-659-11	METAL	2.2K	0.50%	1/10W
R834	1-216-659-11	METAL	2.2K	0.50%	1/10W
R835	1-216-659-11	METAL	2.2K	0.50%	1/10W
R836	1-216-659-11	METAL	2.2K	0.50%	1/10W
R837	1-216-659-11	METAL	2.2K	0.50%	1/10W
R838	1-216-659-11	METAL	2.2K	0.50%	1/10W
R839	1-216-025-00	METAL	100	5%	1/10W
R840	1-216-025-00	METAL	100	5%	1/10W
R841	1-216-073-00	METAL	10K	5%	1/10W
R842	1-216-025-00	METAL	100	5%	1/10W
R843	1-216-051-00	METAL	1.2K	5%	1/10W
R844	1-216-057-00	METAL	2.2K	5%	1/10W
R845	1-216-651-11	METAL	1K	0.50%	1/10W

Ref.No	Part No.	Description			Remark
R846	1-216-651-11	METAL	1K	0.50%	1/10W
R847	1-216-295-11	METAL	0	5%	1/10W
R848	1-216-053-00	METAL	1.5K	5%	1/10W
R849	1-216-309-00	METAL	5.6	5%	1/10W
R850	1-216-309-00	METAL	5.6	5%	1/10W
R851	1-216-631-11	METAL	150	0.50%	1/10W
R852	1-216-631-11	METAL	150	0.50%	1/10W
R853	1-216-081-00	METAL	22K	5%	1/10W
R854	1-216-073-00	METAL	10K	5%	1/10W
R855	1-216-025-00	METAL	100	5%	1/10W
R856	1-216-051-00	METAL	1.2K	5%	1/10W
R857	1-216-057-00	METAL	2.2K	5%	1/10W
R858	1-216-055-00	METAL	1.8K	5%	1/10W
R859	1-216-069-00	METAL	6.8K	5%	1/10W
R860	1-216-651-11	METAL	1K	0.50%	1/10W
R861	1-216-651-11	METAL	1K	0.50%	1/10W
R862	1-216-295-11	METAL	0	5%	1/10W
R863	1-216-053-00	METAL	1.5K	5%	1/10W
R864	1-216-309-00	METAL	5.6	5%	1/10W
R865	1-216-309-00	METAL	5.6	5%	1/10W
R866	1-216-631-11	METAL	150	0.50%	1/10W
R867	1-216-631-11	METAL	150	0.50%	1/10W
R868	1-216-081-00	METAL	22K	5%	1/10W
R869	1-216-073-00	METAL	10K	5%	1/10W
R870	1-216-025-00	METAL	100	5%	1/10W
R871	1-216-051-00	METAL	1.2K	5%	1/10W
R872	1-216-057-00	METAL	2.2K	5%	1/10W
R873	1-216-651-11	METAL	1K	0.50%	1/10W
R874	1-216-651-11	METAL	1K	0.50%	1/10W
R875	1-216-295-11	METAL	0	5%	1/10W
R876	1-216-053-00	METAL	1.5K	5%	1/10W
R877	1-216-309-00	METAL	5.6	5%	1/10W
R878	1-216-309-00	METAL	5.6	5%	1/10W
R879	1-216-631-11	METAL	150	0.50%	1/10W
R880	1-216-631-11	METAL	150	0.50%	1/10W
R881	1-216-081-00	METAL	22K	5%	1/10W
R882	1-216-073-00	METAL	10K	5%	1/10W
R883	1-216-025-00	METAL	100	5%	1/10W
R884	1-216-051-00	METAL	1.2K	5%	1/10W
R885	1-216-057-00	METAL	2.2K	5%	1/10W
R886	1-216-651-11	METAL	1K	0.50%	1/10W
R887	1-216-651-11	METAL	1K	0.50%	1/10W
R888	1-216-295-11	METAL	0	5%	1/10W
R889	1-216-053-00	METAL	1.5K	5%	1/10W
R890	1-216-309-00	METAL	5.6	5%	1/10W
R891	1-216-309-00	METAL	5.6	5%	1/10W
R892	1-216-631-11	METAL	150	0.50%	1/10W
R893	1-216-631-11	METAL	150	0.50%	1/10W
R894	1-216-081-00	METAL	22K	5%	1/10W
R895	1-216-073-00	METAL	10K	5%	1/10W
R896	1-216-025-00	METAL	100	5%	1/10W
R897	1-216-051-00	METAL	1.2K	5%	1/10W
R898	1-216-057-00	METAL	2.2K	5%	1/10W
R899	1-216-651-11	METAL	1K	0.50%	1/10W
R900	1-216-643-11	METAL	470	0.50%	1/10W
R901	1-216-295-11	METAL	0	5%	1/10W
R902	1-216-053-00	METAL	1.5K	5%	1/10W
R903	1-216-309-00	METAL	5.6	5%	1/10W
R904	1-216-309-00	METAL	5.6	5%	1/10W
R905	1-216-631-11	METAL	150	0.50%	1/10W
R906	1-216-631-11	METAL	150	0.50%	1/10W
R907	1-216-081-00	METAL	22K	5%	1/10W
R908	1-216-073-00	METAL	10K	5%	1/10W
R909	1-216-025-00	METAL	100	5%	1/10W
R910	1-216-051-00	METAL	1.2K	5%	1/10W

Ref.No	Part No.	Description			Remark
R911	1-216-057-00	METAL	2.2K	5%	1/10W
R912	1-216-651-11	METAL	1K	0.50%	1/10W
R913	1-216-643-11	METAL	470	0.50%	1/10W
R914	1-216-295-11	METAL	0	5%	1/10W
R915	1-216-053-00	METAL	1.5K	5%	1/10W
R916	1-216-309-00	METAL	5.6	5%	1/10W
R917	1-216-309-00	METAL	5.6	5%	1/10W
R918	1-216-631-11	METAL	150	0.50%	1/10W
R919	1-216-631-11	METAL	150	0.50%	1/10W
R920	1-216-081-00	METAL	22K	5%	1/10W
R921	1-216-073-00	METAL	10K	5%	1/10W
R922	1-216-063-00	METAL	3.9K	5%	1/10W
R923	1-216-073-00	METAL	10K	5%	1/10W
R924	1-216-057-00	METAL	2.2K	5%	1/10W
R925	1-216-057-00	METAL	2.2K	5%	1/10W
R926	1-216-309-00	METAL	5.6	5%	1/10W
R927	1-216-309-00	METAL	5.6	5%	1/10W
R928	1-216-629-11	METAL	120	0.50%	1/10W
R929	1-216-633-11	METAL	180	0.50%	1/10W
R930	1-216-081-00	METAL	22K	5%	1/10W
R931	1-216-049-00	METAL	1K	5%	1/10W
R932	1-216-049-00	METAL	1K	5%	1/10W
R933	1-216-049-00	METAL	1K	5%	1/10W
R934	1-216-049-00	METAL	1K	5%	1/10W

<CRYSTAL>

X201	1-579-466-11	VIBRATOR, CRYSTAL
X501	1-579-738-21	VIBRATOR, CRYSTAL

****

*A-8275-528-A FMY-10P(L) BOARD, COMPLETE(UP-1800EPM)
*A-8275-495-A FMY-10P(H) BOARD, COMPLETE(UP-1850EPM)
****

<BUZZER>

BZ401	1-529-069-11	BUZZER, PIEZOELECTRIC

<CAPACITOR>

C1	1-126-217-11	ELECT	15uF	20%	10V
C2	1-126-217-11	ELECT	15uF	20%	10V
C3	1-126-217-11	ELECT	15uF	20%	10V
C4	1-163-117-00	CERAMIC	100PF	5%	50V
C5	1-163-038-00	CERAMIC	0.1uF		25V
C6	1-163-117-00	CERAMIC	100PF	5%	50V
C7	1-126-217-11	ELECT	15uF	20%	10V
C8	1-163-117-00	CERAMIC	100PF	5%	50V
C9	1-126-217-11	ELECT	15uF	20%	10V
C10	1-163-038-00	CERAMIC	0.1uF		25V
C11	1-126-217-11	ELECT	15uF	20%	10V
C12	1-163-038-00	CERAMIC	0.1uF		25V
C13	1-126-217-11	ELECT	15uF	20%	10V
C14	1-163-038-00	CERAMIC	0.1uF		25V
C15	1-163-038-00	CERAMIC	0.1uF		25V
C16	1-163-037-11	CERAMIC	0.022uF	10%	25V
C17	1-163-038-00	CERAMIC	0.1uF		25V
C18	1-126-217-11	ELECT	15uF	20%	10V
C19	1-126-217-11	ELECT	15uF	20%	10V
C20	1-163-038-00	CERAMIC	0.1uF		25V
C21	1-163-038-00	CERAMIC	0.1uF		25V
C22	1-163-037-11	CERAMIC	0.022uF	10%	25V
C23	1-128-065-11	ELECT	68uF	20%	10V
C24	1-128-065-11	ELECT	68uF	20%	10V
C25	1-163-038-00	CERAMIC	0.1uF		25V

FMY-10P

Ref.No	Part No.	Description			Remark
C26	1-163-227-11	CERAMIC	10PF		50V
C27	1-163-038-00	CERAMIC	0.1uF		25V
C28	1-163-227-11	CERAMIC	10PF		50V
C29	1-163-227-11	CERAMIC	10PF		50V
C30	1-126-204-11	ELECT	47uF	20%	16V
C31	1-163-037-11	CERAMIC	0.022uF	10%	25V
C32	1-163-037-11	CERAMIC	0.022uF	10%	25V
C33	1-163-038-00	CERAMIC	0.1uF		25V
C34	1-163-038-00	CERAMIC	0.1uF		25V
C35	1-163-038-00	CERAMIC	0.1uF		25V
C36	1-163-038-00	CERAMIC	0.1uF		25V
C37	1-163-038-00	CERAMIC	0.1uF		25V
C38	1-163-038-00	CERAMIC	0.1uF		25V
C39	1-163-038-00	CERAMIC	0.1uF		25V
C40	1-163-038-00	CERAMIC	0.1uF		25V
C41	1-163-038-00	CERAMIC	0.1uF		25V
C42	1-126-204-11	ELECT	47uF	20%	16V
C43	1-163-038-00	CERAMIC	0.1uF		25V
C44	1-126-204-11	ELECT	47uF	20%	16V
C45	1-163-038-00	CERAMIC	0.1uF		25V
C46	1-126-204-11	ELECT	47uF	20%	16V
C47	1-163-038-00	CERAMIC	0.1uF		25V
C48	1-163-038-00	CERAMIC	0.1uF		25V
C49	1-163-038-00	CERAMIC	0.1uF		25V
C50	1-163-038-00	CERAMIC	0.1uF		25V
C51	1-163-038-00	CERAMIC	0.1uF		25V
C52	1-163-038-00	CERAMIC	0.1uF		25V
C53	1-126-204-11	ELECT	47uF	20%	16V
C54	1-163-038-00	CERAMIC	0.1uF		25V
C55	1-163-038-00	CERAMIC	0.1uF		25V
C56	1-126-204-11	ELECT	47uF	20%	16V
C57	1-163-038-00	CERAMIC	0.1uF		25V
C58	1-164-699-11	CERAMIC	0.0033uF	5%	50V
C59	1-163-038-00	CERAMIC	0.1uF		25V
C60	1-163-038-00	CERAMIC	0.1uF		25V
C61	1-163-038-00	CERAMIC	0.1uF		25V
C62	1-163-038-00	CERAMIC	0.1uF		25V
C63	1-163-132-00	CERAMIC	430PF	5%	50V
C64	1-164-004-11	CERAMIC	0.1uF	10%	25V
C200	1-126-204-11	ELECT	47uF	20%	16V (UP-1850EPM)
C201	1-126-607-11	ELECT	47uF	20%	4V (UP-1850EPM)
C202	1-126-607-11	ELECT	47uF	20%	4V (UP-1850EPM)
C203	1-163-038-00	CERAMIC	0.1uF		25V (UP-1850EPM)
C204	1-126-204-11	ELECT	47uF	20%	16V
C205	1-164-346-11	CERAMIC	1uF		16V
C206	1-164-346-11	CERAMIC	1uF		16V
C207	1-163-133-00	CERAMIC	470PF	5%	50V
C208	1-164-004-11	CERAMIC	0.1uF	10%	25V
C209	1-164-346-11	CERAMIC	1uF		16V
C210	1-164-346-11	CERAMIC	1uF		16V
C211	1-163-038-00	CERAMIC	0.1uF		25V
C212	1-163-239-11	CERAMIC	33PF	5%	50V
C213	1-126-204-11	ELECT	47uF	20%	16V
C214	1-164-346-11	CERAMIC	1uF		16V
C215	1-164-346-11	CERAMIC	1uF		16V
C216	1-163-109-00	CERAMIC	47PF	5%	50V
C217	1-163-109-00	CERAMIC	47PF	5%	50V
C228	1-164-346-11	CERAMIC	1uF		16V
C229	1-163-038-00	CERAMIC	0.1uF		25V
C230	1-163-117-00	CERAMIC	100PF	5%	50V
C231	1-163-038-00	CERAMIC	0.1uF		25V
C232	1-163-038-00	CERAMIC	0.1uF		25V
C233	1-163-109-00	CERAMIC	47PF	5%	50V
C234	1-163-109-00	CERAMIC	47PF	5%	50V
C235	1-163-038-00	CERAMIC	0.1uF		25V
C236	1-163-038-00	CERAMIC	0.1uF		25V
C237	1-163-038-00	CERAMIC	0.1uF		25V
C239	1-163-037-11	CERAMIC	0.022uF	10%	25V
C240	1-163-038-00	CERAMIC	0.1uF		25V
C241	1-163-038-00	CERAMIC	0.1uF		25V
C242	1-163-038-00	CERAMIC	0.1uF		25V
C243	1-163-038-00	CERAMIC	0.1uF		25V
C244	1-126-204-11	ELECT	47uF	20%	16V
C245	1-163-038-00	CERAMIC	0.1uF		25V
C246	1-163-038-00	CERAMIC	0.1uF		25V
C401	1-126-204-11	ELECT	47uF	20%	16V
C402	1-163-038-00	CERAMIC	0.1uF		25V
C403	1-128-065-11	ELECT	68uF	20%	10V
C404	1-163-038-00	CERAMIC	0.1uF		25V
C405	1-163-038-00	CERAMIC	0.1uF		25V
C406	1-163-038-00	CERAMIC	0.1uF		25V
C407	1-163-038-00	CERAMIC	0.1uF		25V
C408	1-163-038-00	CERAMIC	0.1uF		25V
C409	1-163-038-00	CERAMIC	0.1uF		25V
C410	1-163-038-00	CERAMIC	0.1uF		25V
C411	1-163-097-00	CERAMIC	15PF	5%	50V
C412	1-163-097-00	CERAMIC	15PF	5%	50V
C413	1-126-204-11	ELECT	47uF	20%	16V
C414	1-163-038-00	CERAMIC	0.1uF		25V
C415	1-163-038-00	CERAMIC	0.1uF		25V
C416	1-126-204-11	ELECT	47uF	20%	16V
C417	1-163-038-00	CERAMIC	0.1uF		25V
C418	1-163-038-00	CERAMIC	0.1uF		25V
C419	1-126-204-11	ELECT	47uF	20%	16V
C420	1-163-038-00	CERAMIC	0.1uF		25V
C421	1-163-038-00	CERAMIC	0.1uF		25V
C422	1-126-204-11	ELECT	47uF	20%	16V
C423	1-163-038-00	CERAMIC	0.1uF		25V
C424	1-163-038-00	CERAMIC	0.1uF		25V
C425	1-126-204-11	ELECT	47uF	20%	16V
C426	1-126-204-11	ELECT	47uF	20%	16V
C427	1-126-204-11	ELECT	47uF	20%	16V
C428	1-126-204-11	ELECT	47uF	20%	16V
C429	1-163-038-00	CERAMIC	0.1uF		25V
C430	1-163-038-00	CERAMIC	0.1uF		25V
C431	1-163-038-00	CERAMIC	0.1uF		25V
C432	1-163-038-00	CERAMIC	0.1uF		25V
C433	1-163-038-00	CERAMIC	0.1uF		25V
C434	1-163-038-00	CERAMIC	0.1uF		25V
C435	1-163-038-00	CERAMIC	0.1uF		25V
C436	1-163-038-00	CERAMIC	0.1uF		25V
C437	1-163-038-00	CERAMIC	0.1uF		25V
C438	1-164-232-11	CERAMIC	0.01uF	10%	50V
C439	1-164-232-11	CERAMIC	0.01uF	10%	50V
C440	1-164-232-11	CERAMIC	0.01uF	10%	50V
C600	1-163-038-00	CERAMIC	0.1uF		25V
C601	1-163-038-00	CERAMIC	0.1uF		25V
C602	1-163-038-00	CERAMIC	0.1uF		25V
C603	1-163-038-00	CERAMIC	0.1uF		25V
C604	1-163-038-00	CERAMIC	0.1uF		25V
C605	1-163-113-00	CERAMIC	68PF	5%	50V
C606	1-163-113-00	CERAMIC	68PF	5%	50V
C607	1-163-113-00	CERAMIC	68PF	5%	50V
C608	1-163-113-00	CERAMIC	68PF	5%	50V
C609	1-163-113-00	CERAMIC	68PF	5%	50V
C610	1-163-113-00	CERAMIC	68PF	5%	50V
C611	1-163-113-00	CERAMIC	68PF	5%	50V
C612	1-163-113-00	CERAMIC	68PF	5%	50V

Ref.No	Part No.	Description	Remark
		<CONNECTOR>	
CN1	1-565-212-11	CONNECTOR, FPC (ZIF) 26P	
CN2	*1-560-894-00	PIN, CONNECTOR 6P	
CN401	1-506-469-11	PIN, CONNECTOR 4P	
CN402	1-566-523-11	CONNECTOR, FPC (ZIF) 7P	
CN403	1-565-212-11	CONNECTOR, FPC (ZIF) 26P	
CN404	1-506-477-11	PIN, CONNECTOR 12P	
CN405	1-506-472-11	PIN, CONNECTOR 7P	
CN406	1-506-472-11	PIN, CONNECTOR 7P	
CN407	1-506-474-11	PIN, CONNECTOR 9P	
CN408	1-506-467-11	PIN, CONNECTOR 2P	
CN409	1-506-479-11	PIN, CONNECTOR 14P	
CN410	*1-564-004-11	PIN, CONNECTOR 5P	
CN600	1-566-532-11	CONNECTOR, FPC (ZIF) 16P	
		<DIODE>	
D1	8-719-800-76	DIODE 1SS226	
D2	8-719-800-76	DIODE 1SS226	
D3	8-719-800-76	DIODE 1SS226	
D401	8-719-400-18	DIODE 1SS184	
D402	8-719-400-18	DIODE 1SS184	
D403	8-719-104-34	DIODE 1S2836	
DL1	8-759-507-10	IC DS1000S-75	
DL200	8-759-503-50	IC DS1000S-50	
		<FILTER>	
FL1	1-236-738-11	FILTER, EMI	
FL2	1-236-738-11	FILTER, EMI	
FL3	1-236-738-11	FILTER, EMI	
		<IC>	
IC3	8-759-989-03	IC 74F32SJ	
IC6	8-752-337-04	IC CXD1176Q	
IC7	8-752-337-04	IC CXD1176Q	
IC8	8-752-337-04	IC CXD1176Q	
IC9	8-759-093-19	IC CXD8444Q	
IC10	8-752-338-46	IC CXD1178Q	
IC200	8-759-093-63	IC HM51H240AS7-EL (UP-1800EPM)	
IC200	8-759-255-89	IC HM514400AS7GS (UP-1850EPM)	
IC201	8-759-093-63	IC HM51H240AS7-EL (UP-1800EPM)	
IC201	8-759-255-89	IC HM514400AS7GS (UP-1850EPM)	
IC202	8-759-255-89	IC HM514400AS7GS (UP-1850EPM)	
IC203	8-759-255-89	IC HM514400AS7GS (UP-1850EPM)	
IC204	8-759-093-63	IC HM51H240AS7-EL (UP-1800EPM)	
IC204	8-759-255-89	IC HM514400AS7GS (UP-1850EPM)	
IC205	8-759-093-63	IC HM51H240AS7-EL (UP-1800EPM)	
IC205	8-759-255-89	IC HM514400AS7GS (UP-1850EPM)	
IC206	8-759-255-89	IC HM514400AS7GS (UP-1850EPM)	
IC207	8-759-255-89	IC HM514400AS7GS (UP-1850EPM)	
IC208	8-759-093-63	IC HM51H240AS7-EL (UP-1800EPM)	
IC209	8-759-093-63	IC HM51H240AS7-EL (UP-1800EPM)	
IC209	8-759-255-89	IC HM514400AS7GS (UP-1850EPM)	
IC210	8-759-255-89	IC HM514400AS7GS (UP-1850EPM)	
IC211	8-759-255-89	IC HM514400AS7GS (UP-1850EPM)	
IC212	8-759-114-07	IC UPD65013GF-407-3BA	
IC213	8-759-992-78	IC 74F257ASJ	
IC214	8-759-989-01	IC 74F08SJ	
IC215	8-759-989-03	IC 74F32SJ	
IC216	8-759-114-09	IC UPD65006GF-250-3B8	
IC217	*8-759-254-92	IC HD6475328F-FMY10-01	
IC219	8-759-084-15	IC CXD8391Q	
IC402	8-759-937-56	IC S-8054ALB-LM-S	
IC403	8-759-044-78	IC AK6420F	
IC404	8-759-254-44	IC MB89093PFV-G-122-BND	
IC406	*8-759-257-13	IC M27C512-UP18PSYV1.00	

Ref.No	Part No.	Description	Remark
IC407	8-759-154-60	IC UPD71055GB-10-3B4	
IC408	8-759-047-38	IC UPD4713GT	
IC409	8-759-149-05	IC UPD71051GB-10-3B4	
IC410	8-759-254-94	IC HD6413378F10	
IC411	8-759-925-81	IC SN74HC20ANS	
IC412	8-759-925-85	IC SN74HC32ANS	
IC413	8-759-925-74	IC SN74HC04ANS	
IC414	8-759-926-11	IC SN74HC138ANS	
IC600	8-759-257-07	IC M5M27C201FP-UP18S-E2	
IC601	8-759-088-02	IC CXD8398Q	
IC602	8-759-257-06	IC M5M27C201FP-UP18M-E2	
IC603	8-759-257-05	IC M5M27C201FP-UP18R-E2	
IC604	8-759-926-82	IC SN74HC574ANS	
IC605	8-759-948-02	IC 74F86SJ	
IC606	8-759-948-01	IC 74F04SJ	
		<JUMPER>	
JR4	1-216-295-11	METAL GLAZE 0 5%	1/10W
JR5	1-216-295-11	METAL GLAZE 0 5%	1/10W
JR36	1-216-295-11	METAL GLAZE 0 5%	1/10W
JR37	1-216-295-11	METAL GLAZE 0 5%	1/10W
JR39	1-216-295-11	METAL GLAZE 0 5%	1/10W
JR40	1-216-295-11	METAL GLAZE 0 5%	1/10W
JR48	1-216-295-11	METAL GLAZE 0 5%	1/10W
JR104	1-216-295-11	METAL GLAZE 0 5%	1/10W
JR105	1-216-295-11	METAL GLAZE 0 5%	1/10W
JR162	1-216-295-11	METAL GLAZE 0 5%	1/10W
JR168	1-216-295-11	METAL GLAZE 0 5%	1/10W
JR170	1-216-295-11	METAL GLAZE 0 5%	1/10W
JR240	1-216-295-11	METAL GLAZE 0 5%	1/10W
		<LINE FILTER>	
L1	1-424-090-11	COIL, LINE FILTER	
L2	1-424-090-11	COIL, LINE FILTER	
L3	1-424-090-11	COIL, LINE FILTER	
L4	1-424-090-11	COIL, LINE FILTER	
L401	1-424-643-11	COIL, CHOKE 10UH	
		<TRANSISTOR>	
Q1	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q2	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q3	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q4	8-729-402-84	TRANSISTOR XN4601	
Q5	8-729-402-84	TRANSISTOR XN4601	
Q6	8-729-402-84	TRANSISTOR XN4601	
Q7	8-729-901-01	TRANSISTOR DTC144EK	
Q401	8-729-901-01	TRANSISTOR DTC144EK	
Q402	8-729-901-01	TRANSISTOR DTC144EK	
		<RESISTOR>	
R7	1-216-009-00	METAL 22 5%	1/10W
R8	1-216-073-00	METAL 10K 5%	1/10W
R9	1-216-089-91	METAL 47K 5%	1/10W
R10	1-216-009-00	METAL 22 5%	1/10W
R11	1-216-009-00	METAL 22 5%	1/10W
R12	1-216-073-00	METAL 10K 5%	1/10W
R13	1-216-049-11	METAL 1K 5%	1/10W
R14	1-216-073-00	METAL 10K 5%	1/10W
R15	1-216-025-00	METAL 100 5%	1/10W
R16	1-216-073-00	METAL 10K 5%	1/10W
R17	1-216-025-00	METAL 100 5%	1/10W
R18	1-216-073-00	METAL 10K 5%	1/10W
R19	1-216-025-00	METAL 100 5%	1/10W
R20	1-216-073-00	METAL 10K 5%	1/10W
R22	1-216-053-00	METAL 1.5K 5%	1/10W

FMY-10P

Ref.No	Part No.	Description			Remark
R23	1-216-033-00	METAL	220	5%	1/10W
R24	1-216-053-00	METAL	1.5K	5%	1/10W
R25	1-216-053-00	METAL	1.5K	5%	1/10W
R26	1-216-053-00	METAL	1.5K	5%	1/10W
R27	1-216-033-00	METAL	220	5%	1/10W
R29	1-216-635-11	METAL	220	0.50%	1/10W
R30	1-216-053-00	METAL	1.5K	5%	1/10W
R31	1-216-053-00	METAL	1.5K	5%	1/10W
R32	1-216-022-00	METAL	75	5%	1/10W
R33	1-216-022-00	METAL	75	5%	1/10W
R34	1-216-022-00	METAL	75	5%	1/10W
R42	1-216-033-00	METAL	220	5%	1/10W
R43	1-216-017-00	METAL	47	5%	1/10W
R44	1-216-033-00	METAL	220	5%	1/10W
R45	1-216-017-00	METAL	47	5%	1/10W
R46	1-216-033-00	METAL	220	5%	1/10W
R47	1-216-017-00	METAL	47	5%	1/10W
R49	1-216-033-00	METAL	220	5%	1/10W
R50	1-216-033-00	METAL	220	5%	1/10W
R51	1-216-033-00	METAL	220	5%	1/10W
R52	1-216-033-00	METAL	220	5%	1/10W
R53	1-216-033-00	METAL	220	5%	1/10W
R54	1-216-033-00	METAL	220	5%	1/10W
R55	1-216-033-00	METAL	220	5%	1/10W
R56	1-216-033-00	METAL	220	5%	1/10W
R58	1-216-033-00	METAL	220	5%	1/10W
R59	1-216-635-11	METAL	220	0.50%	1/10W
R60	1-216-635-11	METAL	220	0.50%	1/10W
R61	1-216-033-00	METAL	220	5%	1/10W
R62	1-216-033-00	METAL	220	5%	1/10W
R63	1-216-033-00	METAL	220	5%	1/10W
R64	1-216-033-00	METAL	220	5%	1/10W
R65	1-216-033-00	METAL	220	5%	1/10W
R66	1-216-033-00	METAL	220	5%	1/10W
R67	1-216-033-00	METAL	220	5%	1/10W
R68	1-216-033-00	METAL	220	5%	1/10W
R69	1-216-033-00	METAL	220	5%	1/10W
R70	1-216-033-00	METAL	220	5%	1/10W
R71	1-216-033-00	METAL	220	5%	1/10W
R72	1-216-033-00	METAL	220	5%	1/10W
R73	1-216-033-00	METAL	220	5%	1/10W
R99	1-216-065-00	METAL	4.7K	5%	1/10W
R100	1-216-017-00	METAL	47	5%	1/10W
R101	1-216-017-00	METAL	47	5%	1/10W
R102	1-216-017-00	METAL	47	5%	1/10W
R103	1-216-025-00	METAL	100	5%	1/10W
R118	1-216-041-00	METAL	470	5%	1/10W
R119	1-216-041-00	METAL	470	5%	1/10W
R120	1-216-041-00	METAL	470	5%	1/10W
R121	1-216-041-00	METAL	470	5%	1/10W
R122	1-216-041-00	METAL	470	5%	1/10W
R123	1-216-041-00	METAL	470	5%	1/10W
R124	1-216-041-00	METAL	470	5%	1/10W
R125	1-216-041-00	METAL	470	5%	1/10W
R126	1-216-041-00	METAL	470	5%	1/10W
R127	1-216-041-00	METAL	470	5%	1/10W
R128	1-216-041-00	METAL	470	5%	1/10W
R129	1-216-041-00	METAL	470	5%	1/10W
R130	1-216-017-00	METAL	47	5%	1/10W
R131	1-216-017-00	METAL	47	5%	1/10W
R132	1-216-041-00	METAL	470	5%	1/10W
R135	1-216-041-00	METAL	470	5%	1/10W
R136	1-216-041-00	METAL	470	5%	1/10W
R138	1-216-041-00	METAL	470	5%	1/10W
R140	1-216-041-00	METAL	470	5%	1/10W

Ref.No	Part No.	Description			Remark
R142	1-216-041-00	METAL	470	5%	1/10W
R144	1-216-041-00	METAL	470	5%	1/10W
R146	1-216-041-00	METAL	470	5%	1/10W
R148	1-216-041-00	METAL	470	5%	1/10W
R150	1-216-041-00	METAL	470	5%	1/10W
R152	1-216-041-00	METAL	470	5%	1/10W
R154	1-216-061-00	METAL	3.3K	5%	1/10W
R155	1-216-041-00	METAL	470	5%	1/10W
R157	1-216-069-00	METAL	6.8K	5%	1/10W
R158	1-216-069-00	METAL	6.8K	5%	1/10W
R159	1-216-032-00	METAL	200	5%	1/10W
R160	1-216-032-00	METAL	200	5%	1/10W
R161	1-216-032-00	METAL	200	5%	1/10W
R163	1-216-049-00	METAL	1K	5%	1/10W
R171	1-216-295-00	METAL	0	5%	1/10W
R172	1-216-295-00	METAL	0	5%	1/10W
R173	1-216-295-00	METAL	0	5%	1/10W
R174	1-216-295-00	METAL	0	5%	1/10W
R175	1-216-295-00	METAL	0	5%	1/10W
R176	1-216-295-00	METAL	0	5%	1/10W
R200	1-216-049-00	METAL	1K	5%	1/10W
R201	1-216-049-00	METAL	1K	5%	1/10W
R202	1-216-017-00	METAL	47	5%	1/10W
R203	1-216-017-00	METAL	47	5%	1/10W
R204	1-216-017-00	METAL	47	5%	1/10W
R205	1-216-017-00	METAL	47	5%	1/10W
R206	1-216-017-00	METAL	47	5%	1/10W
R207	1-216-017-00	METAL	47	5%	1/10W
R208	1-216-017-00	METAL	47	5%	1/10W
R209	1-216-017-00	METAL	47	5%	1/10W
R210	1-216-017-00	METAL	47	5%	1/10W
R211	1-216-017-00	METAL	47	5%	1/10W
R212	1-216-017-00	METAL	47	5%	1/10W
R213	1-216-017-00	METAL	47	5%	1/10W
R214	1-216-017-00	METAL	47	5%	1/10W
R215	1-216-017-00	METAL	47	5%	1/10W
R216	1-216-017-00	METAL	47	5%	1/10W
R217	1-216-017-00	METAL	47	5%	1/10W
R218	1-216-017-00	METAL	47	5%	1/10W
R219	1-216-017-00	METAL	47	5%	1/10W
R220	1-216-017-00	METAL	47	5%	1/10W
R221	1-216-017-00	METAL	47	5%	1/10W
R222	1-216-017-00	METAL	47	5%	1/10W
R223	1-216-017-00	METAL	47	5%	1/10W
R224	1-216-017-00	METAL	47	5%	1/10W
R225	1-216-017-00	METAL	47	5%	1/10W
R226	1-216-025-00	METAL	100	5%	1/10W
R227	1-216-017-00	METAL	47	5%	1/10W
R228	1-216-017-00	METAL	47	5%	1/10W
R230	1-216-065-00	METAL	4.7K	5%	1/10W
R231	1-216-017-00	METAL	47	5%	1/10W
R232	1-216-041-00	METAL	470	5%	1/10W
R233	1-216-017-00	METAL	47	5%	1/10W
R234	1-216-295-11	METAL	0	5%	1/10W
R236	1-216-089-91	METAL	47K	5%	1/10W
R238	1-216-017-00	METAL	47	5%	1/10W
R239	1-216-049-00	METAL	1K	5%	1/10W
R241	1-216-065-00	METAL	4.7K	5%	1/10W
R242	1-216-121-00	METAL	1M	5%	1/10W
R250	1-216-295-11	METAL	0	5%	1/10W
R400	1-216-052-00	METAL	1.3K	5%	1/10W
R401	1-216-033-00	METAL	220	5%	1/10W
R402	1-216-033-00	METAL	220	5%	1/10W
R403	1-216-025-00	METAL	100	5%	1/10W
R404	1-216-025-00	METAL	100	5%	1/10W

Ref.No	Part No.	Description			Remark
R405	1-216-025-00	METAL	100	5%	1/10W
R406	1-216-025-00	METAL	100	5%	1/10W
R407	1-216-025-00	METAL	100	5%	1/10W
R408	1-216-025-00	METAL	100	5%	1/10W
R409	1-216-025-00	METAL	100	5%	1/10W
R410	1-216-025-00	METAL	100	5%	1/10W
R411	1-216-025-00	METAL	100	5%	1/10W
R412	1-216-025-00	METAL	100	5%	1/10W
R413	1-216-089-91	METAL	47K	5%	1/10W
R414	1-216-089-91	METAL	47K	5%	1/10W
R415	1-216-089-91	METAL	47K	5%	1/10W
R416	1-216-089-91	METAL	47K	5%	1/10W
R417	1-216-089-91	METAL	47K	5%	1/10W
R418	1-216-089-91	METAL	47K	5%	1/10W
R419	1-216-089-91	METAL	47K	5%	1/10W
R420	1-216-025-00	METAL	100	5%	1/10W
R421	1-216-025-00	METAL	100	5%	1/10W
R422	1-216-025-00	METAL	100	5%	1/10W
R423	1-216-025-00	METAL	100	5%	1/10W
R424	1-216-025-00	METAL	100	5%	1/10W
R425	1-216-025-00	METAL	100	5%	1/10W
R426	1-216-041-00	METAL	470	5%	1/10W
R427	1-216-097-00	METAL	100K	5%	1/10W
R428	1-216-089-91	METAL	47K	5%	1/10W
R429	1-216-025-00	METAL	100	5%	1/10W
R430	1-216-049-00	METAL	1K	5%	1/10W
R431	1-216-025-00	METAL	100	5%	1/10W
R432	1-216-089-91	METAL	47K	5%	1/10W
R433	1-216-025-00	METAL	100	5%	1/10W
R434	1-216-113-00	METAL	470K	5%	1/10W
R435	1-216-073-00	METAL	10K	5%	1/10W
R436	1-216-025-00	METAL	100	5%	1/10W
R437	1-216-073-00	METAL	10K	5%	1/10W
R438	1-216-025-00	METAL	100	5%	1/10W
R439	1-216-113-00	METAL	470K	5%	1/10W
R440	1-216-073-00	METAL	10K	5%	1/10W
R441	1-216-113-00	METAL	470K	5%	1/10W
R442	1-216-025-00	METAL	100	5%	1/10W
R443	1-216-089-91	METAL	47K	5%	1/10W
R444	1-216-089-91	METAL	47K	5%	1/10W
R445	1-216-089-91	METAL	47K	5%	1/10W
R446	1-216-025-00	METAL	100	5%	1/10W
R447	1-216-089-91	METAL	47K	5%	1/10W
R448	1-216-089-91	METAL	47K	5%	1/10W
R449	1-216-089-91	METAL	47K	5%	1/10W
R450	1-216-089-91	METAL	47K	5%	1/10W
R451	1-216-089-91	METAL	47K	5%	1/10W
R452	1-216-025-00	METAL	100	5%	1/10W
R453	1-216-089-91	METAL	47K	5%	1/10W
R454	1-216-033-00	METAL	220	5%	1/10W
R455	1-216-033-00	METAL	220	5%	1/10W
R456	1-216-025-00	METAL	100	5%	1/10W
R457	1-216-025-00	METAL	100	5%	1/10W
R458	1-216-109-00	METAL	330K	5%	1/10W
R459	1-216-121-00	METAL	1M	5%	1/10W
R460	1-216-089-91	METAL	47K	5%	1/10W
R461	1-216-089-91	METAL	47K	5%	1/10W
R462	1-216-025-00	METAL	100	5%	1/10W
R463	1-216-089-91	METAL	47K	5%	1/10W
R464	1-216-025-00	METAL	100	5%	1/10W
R465	1-216-089-91	METAL	47K	5%	1/10W
R466	1-216-089-91	METAL	47K	5%	1/10W
R467	1-216-089-91	METAL	47K	5%	1/10W
R468	1-216-025-00	METAL	100	5%	1/10W
R469	1-216-089-91	METAL	47K	5%	1/10W

Ref.No	Part No.	Description			Remark
R470	1-216-025-00	METAL	100	5%	1/10W
R471	1-216-033-00	METAL	220	5%	1/10W
R472	1-216-089-91	METAL	47K	5%	1/10W
R473	1-216-032-00	METAL	200	5%	1/10W
R477	1-216-025-00	METAL	100	5%	1/10W
R478	1-216-037-00	METAL	330	5%	1/10W
R480	1-216-073-00	METAL	10K	5%	1/10W
R481	1-216-073-00	METAL	10K	5%	1/10W
R482	1-216-089-91	METAL	47K	5%	1/10W
R483	1-216-089-91	METAL	47K	5%	1/10W
R484	1-216-089-91	METAL	47K	5%	1/10W
R485	1-216-089-91	METAL	47K	5%	1/10W
R486	1-216-089-91	METAL	47K	5%	1/10W
R487	1-216-089-91	METAL	47K	5%	1/10W
R488	1-216-089-91	METAL	47K	5%	1/10W
R489	1-216-089-91	METAL	47K	5%	1/10W
R490	1-216-001-00	METAL	10	5%	1/10W
R491	1-216-001-00	METAL	10	5%	1/10W
R492	1-216-001-00	METAL	10	5%	1/10W
R493	1-216-033-00	METAL	220	5%	1/10W
R494	1-216-033-00	METAL	220	5%	1/10W
R495	1-216-033-00	METAL	220	5%	1/10W
R496	1-216-033-00	METAL	220	5%	1/10W
R497	1-216-033-00	METAL	220	5%	1/10W
R498	1-216-033-00	METAL	220	5%	1/10W
R499	1-216-033-00	METAL	220	5%	1/10W
R500	1-216-033-00	METAL	220	5%	1/10W
R501	1-216-033-00	METAL	220	5%	1/10W
R502	1-216-033-00	METAL	220	5%	1/10W
R503	1-216-033-00	METAL	220	5%	1/10W
R504	1-216-033-00	METAL	220	5%	1/10W
R505	1-216-089-91	METAL	47K	5%	1/10W
R506	1-216-089-91	METAL	47K	5%	1/10W
R508	1-216-295-11	METAL	0	5%	1/10W
R509	1-216-073-00	METAL	10K	5%	1/10W
R510	1-216-025-00	METAL	100	5%	1/10W
R511	1-216-033-00	METAL	220	5%	1/10W
R512	1-216-033-00	METAL	220	5%	1/10W
R513	1-216-033-00	METAL	220	5%	1/10W
R514	1-216-033-00	METAL	220	5%	1/10W
R515	1-216-033-00	METAL	220	5%	1/10W
R516	1-216-033-00	METAL	220	5%	1/10W
R517	1-216-033-00	METAL	220	5%	1/10W
R518	1-216-033-00	METAL	220	5%	1/10W
R519	1-216-033-00	METAL	220	5%	1/10W
R520	1-216-033-00	METAL	220	5%	1/10W
R521	1-216-033-00	METAL	220	5%	1/10W
R522	1-216-025-00	METAL	100	5%	1/10W
R523	1-216-025-00	METAL	100	5%	1/10W
R524	1-216-025-00	METAL	100	5%	1/10W
R525	1-216-025-00	METAL	100	5%	1/10W
R526	1-216-025-00	METAL	100	5%	1/10W
R527	1-216-033-00	METAL	220	5%	1/10W
R528	1-216-033-00	METAL	220	5%	1/10W
R529	1-216-033-00	METAL	220	5%	1/10W
R530	1-216-033-00	METAL	220	5%	1/10W
R531	1-216-033-00	METAL	220	5%	1/10W
R532	1-216-033-00	METAL	220	5%	1/10W
R533	1-216-033-00	METAL	220	5%	1/10W
R534	1-216-295-00	METAL	0	5%	1/10W
R535	1-216-295-00	METAL	0	5%	1/10W
R536	1-216-295-00	METAL	0	5%	1/10W
R537	1-216-295-00	METAL	0	5%	1/10W
R538	1-216-033-00	METAL	220	5%	1/10W
R618	1-216-089-91	METAL	47K	5%	1/10W

Ref.No	Part No.	Description			Remark
R619	1-216-089-91	METAL	47K	5%	1/10W
R620	1-216-089-91	METAL	47K	5%	1/10W
R621	1-216-089-91	METAL	47K	5%	1/10W
R656	1-216-033-00	METAL	220	5%	1/10W
R657	1-216-295-00	METAL	0	5%	1/10W
R680	1-216-033-00	METAL	220	5%	1/10W
R681	1-216-033-00	METAL	220	5%	1/10W
R682	1-216-033-00	METAL	220	5%	1/10W
R683	1-216-033-00	METAL	220	5%	1/10W
R684	1-216-033-00	METAL	220	5%	1/10W
R685	1-216-033-00	METAL	220	5%	1/10W
R686	1-216-033-00	METAL	220	5%	1/10W
R687	1-216-033-00	METAL	220	5%	1/10W
R688	1-216-033-00	METAL	220	5%	1/10W
R689	1-216-033-00	METAL	220	5%	1/10W
R690	1-216-033-00	METAL	220	5%	1/10W
R691	1-216-033-00	METAL	220	5%	1/10W
R692	1-216-033-00	METAL	220	5%	1/10W
R693	1-216-033-00	METAL	220	5%	1/10W
R694	1-216-033-00	METAL	220	5%	1/10W
		<CRYSTAL>			
X200	1-760-150-21	VIBRATOR, CERAMIC			
X401	1-579-369-21	VIBRATOR			
X402	1-579-550-11	VIBRATOR, CRYSTAL			
X403	1-760-224-21	VIBRATOR, CERAMIC			

****

Ref.No	Part No.	Description			Remark
	*A-8275-445-A	DUS-12 BOARD, COMPLETE **********************			
		<CAPACITOR>			
C901	1-165-319-11	CERAMIC	0.1uF		50V
		<CONNECTOR>			
CN907	1-506-468-11	PIN, CONNECTOR 3P			
CN908	1-506-468-11	PIN, CONNECTOR 3P			
CN911	1-506-470-11	PIN, CONNECTOR 5P			
CN912	1-506-467-11	PIN, CONNECTOR 2P			
CN918	1-506-467-11	PIN, CONNECTOR 2P			
CN919	1-506-468-11	PIN, CONNECTOR 3P			
		<IC>			
IC901	8-759-633-10	IC M54544AL			
IC902	8-759-100-93	IC UPC393G2			
		<JUMPER>			
JR900	1-216-296-00	METAL GLAZE	0	5%	1/8W
JR901	1-216-295-11	METAL GLAZE	0	5%	1/10W
JR903	1-216-296-00	METAL GLAZE	0	5%	1/8W
JR904	1-216-296-00	METAL GLAZE	0	5%	1/8W
		<RESISTOR>			
R901	1-216-037-00	METAL	330	5%	1/10W
R902	1-216-085-00	METAL	33K	5%	1/10W
R903	1-216-085-00	METAL	33K	5%	1/10W
R904	1-216-081-00	METAL	22K	5%	1/10W
R905	1-216-073-00	METAL	10K	5%	1/10W
R906	1-216-105-00	METAL	220K	5%	1/10W
R907	1-216-089-91	METAL	47K	5%	1/10W
R908	1-216-097-00	METAL	100K	5%	1/10W
R909	1-216-097-00	METAL	100K	5%	1/10W
R924	1-216-041-00	METAL	470	5%	1/10W
R925	1-216-041-00	METAL	470	5%	1/10W

****

Ref.No	Part No.	Description			Remark
	*A-8275-496-A	HM-22P(H) BOARD, COMPLETE ************************			
		<CAPACITOR>			
C701	1-126-950-11	ELECT	330uF	20%	35V
C703	1-165-112-11	CERAMIC	0.33uF		16V
C704	1-165-112-11	CERAMIC	0.33uF		16V
C705	1-124-779-00	ELECT	10uF	20%	16V
C706	1-165-112-11	CERAMIC	0.33uF		16V
C707	1-165-112-11	CERAMIC	0.33uF		16V
C708	1-135-166-21	TANTALUM	47uF	20%	6.3V
C711	1-165-112-11	CERAMIC	0.33uF		16V
C712	1-165-112-11	CERAMIC	0.33uF		16V
C713	1-162-970-11	CERAMIC	0.01uF	10%	25V
C714	1-162-970-11	CERAMIC	0.01uF	10%	25V
C715	1-165-112-11	CERAMIC	0.33uF		16V
C716	1-162-970-11	CERAMIC	0.01uF	10%	25V
C717	1-164-360-11	CERAMIC	0.1uF		16V
C718	1-162-970-11	CERAMIC	0.01uF	10%	25V
C719	1-162-970-11	CERAMIC	0.01uF	10%	25V
C720	1-164-360-11	CERAMIC	0.1uF		16V
C721	1-164-360-11	CERAMIC	0.1uF		16V
C722	1-164-360-11	CERAMIC	0.1uF		16V
C723	1-162-970-11	CERAMIC	0.01uF	10%	25V
C724	1-162-970-11	CERAMIC	0.01uF	10%	25V
C725	1-162-970-11	CERAMIC	0.01uF	10%	25V
C726	1-162-970-11	CERAMIC	0.01uF	10%	25V
C727	1-162-970-11	CERAMIC	0.01uF	10%	25V
C728	1-162-970-11	CERAMIC	0.01uF	10%	25V
C729	1-162-970-11	CERAMIC	0.01uF	10%	25V
C734	1-164-360-11	CERAMIC	0.1uF		16V
C735	1-165-112-11	CERAMIC	0.33uF		16V
C736	1-162-970-11	CERAMIC	0.01uF	10%	25V
C737	1-126-204-11	ELECT	47uF	20%	16V
C738	1-165-112-11	CERAMIC	0.33uF		16V
C739	1-135-166-21	TANTALUM	47uF	20%	6.3V
C740	1-165-112-11	CERAMIC	0.33uF		16V
C741	1-165-112-11	CERAMIC	0.33uF		16V
C742	1-126-204-11	ELECT	47uF	20%	16V
C744	1-165-112-11	CERAMIC	0.33uF		16V
C746	1-165-112-11	CERAMIC	0.33uF		16V
C747	1-164-360-11	CERAMIC	0.1uF		16V
C749	1-165-112-11	CERAMIC	0.33uF		16V
C750	1-165-112-11	CERAMIC	0.33uF		16V
C751	1-162-970-11	CERAMIC	0.01uF	10%	25V
C752	1-162-970-11	CERAMIC	0.01uF	10%	25V
C753	1-126-204-11	ELECT	47uF	20%	16V
C754	1-162-945-11	CERAMIC	22PF	5%	50V
C755	1-162-945-11	CERAMIC	22PF	5%	50V
C756	1-165-112-11	CERAMIC	0.33uF		16V
C757	1-162-970-11	CERAMIC	0.01uF	10%	25V
C758	1-162-970-11	CERAMIC	0.01uF	10%	25V
C759	1-162-970-11	CERAMIC	0.01uF	10%	25V
C760	1-162-970-11	CERAMIC	0.01uF	10%	25V
C761	1-162-970-11	CERAMIC	0.01uF	10%	25V
C762	1-162-970-11	CERAMIC	0.01uF	10%	25V
C763	1-162-970-11	CERAMIC	0.01uF	10%	25V
C764	1-162-970-11	CERAMIC	0.01uF	10%	25V
C765	1-162-970-11	CERAMIC	0.01uF	10%	25V
C766	1-162-970-11	CERAMIC	0.01uF	10%	25V
C767	1-162-970-11	CERAMIC	0.01uF	10%	25V
C768	1-164-357-11	CERAMIC	1000PF	5%	50V
C769	1-164-357-11	CERAMIC	1000PF	5%	50V
C770	1-164-360-11	CERAMIC	0.1uF		16V

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No	Part No.	Description	Remark
C771	1-164-360-11	CERAMIC 0.1uF	16V
C776	1-165-112-11	CERAMIC 0.33uF	16V
C777	1-165-112-11	CERAMIC 0.33uF	16V
C778	1-165-112-11	CERAMIC 0.33uF	16V
		<CONNECTOR>	
CN701	*1-580-055-21	PIN, CONNECTOR 2P	
CN702	*1-580-056-21	PIN, CONNECTOR 3P	
CN703	*1-580-056-21	PIN, CONNECTOR 3P	
CN704	*1-580-056-21	PIN, CONNECTOR 3P	
CN705	1-566-537-11	CONNECTOR, FPC (NON ZIF) 5P	
CN706	1-566-523-11	CONNECTOR, FPC (ZIF) 7P	
CN707	1-506-481-11	PIN, CONNECTOR 2P	
CN708	1-506-481-11	PIN, CONNECTOR 2P	
CN709	1-506-485-11	PIN, CONNECTOR 6P	
CN710	1-569-775-21	PIN, CONNECTOR 5P	
CN711	1-569-775-21	PIN, CONNECTOR 5P	
CN712	1-506-481-11	PIN, CONNECTOR 2P	
CN713	1-569-775-21	PIN, CONNECTOR 5P	
CN714	1-566-532-11	CONNECTOR, FPC (ZIF) 16P	
CN715	1-566-526-11	CONNECTOR, FPC (ZIF) 10P	
CN716	1-506-494-11	PIN, CONNECTOR 15P	
CN717	1-566-528-21	CONNECTOR, FPC (ZIF) 12P	
CN718	*1-580-056-21	PIN, CONNECTOR 3P	
CN719	1-506-481-11	PIN, CONNECTOR 2P	
CN721	1-506-481-11	PIN, CONNECTOR 2P	
CN722	*1-580-055-21	PIN, CONNECTOR 2P	
CN723	*1-580-056-21	PIN, CONNECTOR 3P	
CN724	1-580-265-11	CONNECTOR, BOARD TO BOARD 16P	
CN725	1-506-481-11	PIN, CONNECTOR 2P	
		<DIODE>	
D701	8-719-200-02	DIODE 10E2	
D702	8-719-200-02	DIODE 10E2	
D703	8-719-104-34	DIODE 1S2836	
D704	8-719-104-34	DIODE 1S2836	
D705	8-719-104-34	DIODE 1S2836	
D706	8-719-104-34	DIODE 1S2836	
D707	8-719-104-34	DIODE 1S2836	
D709	8-719-104-34	DIODE 1S2836	
D711	8-719-104-34	DIODE 1S2836	
		<FUSE>	
F001	1-532-777-21	FUSE, MICRO (SECONDARY) 125V 1.25A	
		<IC>	
IC701	8-759-154-84	IC HDC443V2	
IC702	8-759-053-58	IC IDT6116SA25SO	
IC703	8-759-053-58	IC IDT6116SA25SO	
IC706	8-759-998-98	IC LM358DR-E1	
IC707	8-759-100-97	IC UPC339G2	
IC708	*8-752-838-99	IC CXP80P116Q-1-240	
IC709	8-759-157-19	IC MB3863PF-G-BND-ER	
IC710	8-759-925-74	IC SN74HC04ANS	
IC711	8-759-100-97	IC UPC339G2	
IC712	8-759-100-97	IC UPC339G2	
IC713	8-759-927-46	IC SN74HC04ANS	
IC714	8-759-242-70	IC TC7WU04F	
		<INDUCTOR>	
L701	1-424-090-11	COIL, LINE FILTER	
L702	1-424-090-11	COIL, LINE FILTER	
L703	1-424-090-11	COIL, LINE FILTER	
L704	1-412-390-21	INDUCTOR CHIP OUH	
L705	1-412-390-21	INDUCTOR CHIP OUH	

Ref.No	Part No.	Description	Remark
L706	1-412-390-21	INDUCTOR CHIP OUH	
L707	1-412-390-21	INDUCTOR CHIP OUH	
L708	1-412-390-21	INDUCTOR CHIP OUH	
L709	1-412-390-21	INDUCTOR CHIP OUH	
L710	1-412-390-21	INDUCTOR CHIP OUH	
L711	1-412-390-21	INDUCTOR CHIP OUH	
L712	1-412-390-21	INDUCTOR CHIP OUH	
		<TRANSISTOR>	
Q701	8-729-901-04	TRANSISTOR DTA114EK	
Q702	8-729-901-00	TRANSISTOR DTC124EK	
Q703	8-729-114-48	TRANSISTOR 2SB962Z-Z-P	
Q705	8-729-017-80	TRANSISTOR 2SD992-Z-E2	
Q706	8-729-017-80	TRANSISTOR 2SD992-Z-E2	
Q707	8-729-017-80	TRANSISTOR 2SD992-Z-E2	
Q708	8-729-017-80	TRANSISTOR 2SD992-Z-E2	
Q709	8-729-140-75	TRANSISTOR 2SD999-CLCK	
Q710	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q711	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
		<RESISTOR>	
R701	1-216-829-11	METAL 4.7K 5%	1/16W
R702	1-216-829-11	METAL 4.7K 5%	1/16W
R703	1-216-829-11	METAL 4.7K 5%	1/16W
R704	1-216-829-11	METAL 4.7K 5%	1/16W
R705	1-216-818-11	METAL 560 5%	1/16W
R706	1-216-818-11	METAL 560 5%	1/16W
R707	1-216-818-11	METAL 560 5%	1/16W
R708	1-216-818-11	METAL 560 5%	1/16W
R709	1-216-813-11	METAL 220 5%	1/16W
R710	1-216-813-11	METAL 220 5%	1/16W
R711	1-216-813-11	METAL 220 5%	1/16W
R712	1-216-813-11	METAL 220 5%	1/16W
R713	⚠1-215-930-11	METAL 10 5%	5W
R715	⚠1-215-930-11	METAL 10 5%	5W
R716	1-216-841-11	METAL 47K 5%	1/16W
R717	1-216-819-11	METAL 680 5%	1/16W
R718	1-216-809-11	METAL 100 5%	1/16W
R719	1-260-099-11	CARBON 1K 5%	1/2W
R720	1-216-833-11	METAL 10K 5%	1/16W
R721	1-216-825-11	METAL 2.2K 5%	1/16W
R722	1-216-815-11	METAL 330 5%	1/16W
R723	1-216-831-11	METAL 6.8K 5%	1/16W
R724	1-216-825-11	METAL 2.2K 5%	1/16W
R725	1-216-840-11	METAL 39K 5%	1/16W
R726	1-216-818-11	METAL 560 5%	1/16W
R727	1-216-813-11	METAL 220 5%	1/16W
R728	1-216-839-11	METAL 33K 5%	1/16W
R729	1-216-841-11	METAL 47K 5%	1/16W
R730	1-216-835-11	METAL 15K 5%	1/16W
R731	1-216-849-11	METAL 220K 5%	1/16W
R732	1-216-833-11	METAL 10K 5%	1/16W
R733	1-216-839-11	METAL 33K 5%	1/16W
R734	1-216-840-11	METAL 39K 5%	1/16W
R735	1-216-831-11	METAL 6.8K 5%	1/16W
R736	1-216-841-11	METAL 47K 5%	1/16W
R737	1-216-841-11	METAL 47K 5%	1/16W
R738	1-216-841-11	METAL 47K 5%	1/16W
R739	1-216-841-11	METAL 47K 5%	1/16W
R740	1-216-837-11	METAL 22K 5%	1/16W
R741	1-216-841-11	METAL 47K 5%	1/16W
R742	1-216-864-11	METAL 0 5%	1/16W
R744	1-216-837-11	METAL 22K 5%	1/16W
R746	1-216-841-11	METAL 47K 5%	1/16W
R747	1-216-849-11	METAL 220K 5%	1/16W
R748	1-216-833-11	METAL 10K 5%	1/16W

Ref.No	Part No.	Description			Remark
R750	1-216-841-11	METAL	47K	5%	1/16W
R751	1-216-833-11	METAL	10K	5%	1/16W
R752	1-216-833-11	METAL	10K	5%	1/16W
R753	1-216-813-11	METAL	220	5%	1/16W
R754	1-216-837-11	METAL	22K	5%	1/16W
R755	1-216-841-11	METAL	47K	5%	1/16W
R756	1-216-849-11	METAL	220K	5%	1/16W
R758	1-216-821-11	METAL	1K	5%	1/16W
R760	1-216-813-11	METAL	220	5%	1/16W
R761	1-216-837-11	METAL	22K	5%	1/16W
R762	1-216-841-11	METAL	47K	5%	1/16W
R763	1-216-821-11	METAL	1K	5%	1/16W
R764	1-216-849-11	METAL	220K	5%	1/16W
R765	1-216-833-11	METAL	10K	5%	1/16W
R766	1-216-839-11	METAL	33K	5%	1/16W
R767	1-216-821-11	METAL	1K	5%	1/16W
R768	1-216-821-11	METAL	1K	5%	1/16W
R769	1-216-841-11	METAL	47K	5%	1/16W
R770	1-216-841-11	METAL	47K	5%	1/16W
R771	1-216-841-11	METAL	47K	5%	1/16W
R772	1-216-841-11	METAL	47K	5%	1/16W
R773	1-216-841-11	METAL	47K	5%	1/16W
R774	1-216-841-11	METAL	47K	5%	1/16W
R775	1-216-841-11	METAL	47K	5%	1/16W
R776	1-216-841-11	METAL	47K	5%	1/16W
R777	1-216-841-11	METAL	47K	5%	1/16W
R778	1-216-841-11	METAL	47K	5%	1/16W
R779	1-216-813-11	METAL	220	5%	1/16W
R780	1-216-813-11	METAL	220	5%	1/16W
R781	1-216-813-11	METAL	220	5%	1/16W
R782	1-216-813-11	METAL	220	5%	1/16W
R783	1-216-813-11	METAL	220	5%	1/16W
R784	1-216-813-11	METAL	220	5%	1/16W
R785	1-216-813-11	METAL	220	5%	1/16W
R786	1-216-813-11	METAL	220	5%	1/16W
R787	1-216-813-11	METAL	220	5%	1/16W
R788	1-216-813-11	METAL	220	5%	1/16W
R789	1-216-837-11	METAL	22K	5%	1/16W
R790	1-216-839-11	METAL	33K	5%	1/16W
R791	1-216-813-11	METAL	220	5%	1/16W
R792	1-216-813-11	METAL	220	5%	1/16W
R793	1-216-838-11	METAL	27K	5%	1/16W
R794	1-216-838-11	METAL	27K	5%	1/16W
R795	1-216-821-11	METAL	1K	5%	1/16W
R796	1-216-821-11	METAL	1K	5%	1/16W
R797	1-216-837-11	METAL	22K	5%	1/16W
R798	1-216-839-11	METAL	33K	5%	1/16W
R799	1-216-813-11	METAL	220	5%	1/16W
R800	1-216-813-11	METAL	220	5%	1/16W
R801	1-216-838-11	METAL	27K	5%	1/16W
R802	1-216-838-11	METAL	27K	5%	1/16W
R803	1-216-821-11	METAL	1K	5%	1/16W
R804	1-216-821-11	METAL	1K	5%	1/16W
R805	1-216-849-11	METAL	220K	5%	1/16W
R806	1-216-849-11	METAL	220K	5%	1/16W
R807	1-216-849-11	METAL	220K	5%	1/16W
R808	1-216-849-11	METAL	220K	5%	1/16W
R809	1-216-837-11	METAL	22K	5%	1/16W
R810	1-216-829-11	METAL	4.7K	5%	1/16W
R811	1-216-833-11	METAL	10K	5%	1/16W
R812	1-216-833-11	METAL	10K	5%	1/16W
R813	1-216-833-11	METAL	10K	5%	1/16W
R814	1-216-833-11	METAL	10K	5%	1/16W
R815	1-216-833-11	METAL	10K	5%	1/16W
R816	1-216-833-11	METAL	10K	5%	1/16W
R817	1-216-829-11	METAL	4.7K	5%	1/16W
R818	1-216-829-11	METAL	4.7K	5%	1/16W
R819	1-216-829-11	METAL	4.7K	5%	1/16W
R820	1-216-829-11	METAL	4.7K	5%	1/16W
R822	1-216-829-11	METAL	4.7K	5%	1/16W
R823	1-216-829-11	METAL	4.7K	5%	1/16W
R824	1-216-829-11	METAL	4.7K	5%	1/16W
R825	1-216-829-11	METAL	4.7K	5%	1/16W
R826	1-216-841-11	METAL	47K	5%	1/16W
R827	1-216-841-11	METAL	47K	5%	1/16W
R828	1-216-841-11	METAL	47K	5%	1/16W
R829	1-216-841-11	METAL	47K	5%	1/16W
R830	1-216-839-11	METAL	33K	5%	1/16W
R831	1-216-837-11	METAL	22K	5%	1/16W
R832	1-216-833-11	METAL	10K	5%	1/16W
R833	1-216-841-11	METAL	47K	5%	1/16W
R834	1-216-841-11	METAL	47K	5%	1/16W
R835	1-216-841-11	METAL	47K	5%	1/16W
R837	1-216-813-11	METAL	220	5%	1/16W
R838	1-216-841-11	METAL	47K	5%	1/16W
R839	1-216-841-11	METAL	47K	5%	1/16W
R840	1-216-821-11	METAL	1K	5%	1/16W
R841	1-216-849-11	METAL	220K	5%	1/16W
R842	1-216-833-11	METAL	10K	5%	1/16W
R843	1-216-839-11	METAL	33K	5%	1/16W
R844	1-216-837-11	METAL	22K	5%	1/16W
R846	1-216-813-11	METAL	220	5%	1/16W
R847	1-216-841-11	METAL	47K	5%	1/16W
R848	1-216-841-11	METAL	47K	5%	1/16W
R849	1-216-821-11	METAL	1K	5%	1/16W
R850	1-216-849-11	METAL	220K	5%	1/16W
R851	1-216-833-11	METAL	10K	5%	1/16W
R852	1-216-839-11	METAL	33K	5%	1/16W
R853	1-216-837-11	METAL	22K	5%	1/16W
R854	1-216-821-11	METAL	1K	5%	1/16W
R855	1-216-841-11	METAL	47K	5%	1/16W
R856	1-216-839-11	METAL	33K	5%	1/16W
R857	1-216-815-11	METAL	330	5%	1/16W
R858	1-216-841-11	METAL	47K	5%	1/16W
R859	1-216-821-11	METAL	1K	5%	1/16W
R860	1-216-849-11	METAL	220K	5%	1/16W
R861	1-216-833-11	METAL	10K	5%	1/16W
R862	1-216-839-11	METAL	33K	5%	1/16W
R863	1-216-837-11	METAL	22K	5%	1/16W
R866	1-216-821-11	METAL	1K	5%	1/16W
R867	1-216-821-11	METAL	1K	5%	1/16W
R868	1-216-829-11	METAL	4.7K	5%	1/16W
R869	1-216-821-11	METAL	1K	5%	1/16W
R870	1-216-821-11	METAL	1K	5%	1/16W
R871	1-216-821-11	METAL	1K	5%	1/16W
R872	1-216-821-11	METAL	1K	5%	1/16W
R873	1-216-841-11	METAL	47K	5%	1/16W
R874	1-216-841-11	METAL	47K	5%	1/16W
R879	1-216-809-11	METAL	100	5%	1/16W
R880	1-216-841-11	METAL	47K	5%	1/16W
R881	1-216-841-11	METAL	47K	5%	1/16W
R882	1-216-841-11	METAL	47K	5%	1/16W
R883	1-216-841-11	METAL	47K	5%	1/16W
R884	1-216-841-11	METAL	47K	5%	1/16W
R885	1-216-841-11	METAL	47K	5%	1/16W
R886	1-216-857-11	METAL	1M	5%	1/16W
R887	1-216-857-11	METAL	1M	5%	1/16W
R888	1-216-841-11	METAL	47K	5%	1/16W
R889	1-216-841-11	METAL	47K	5%	1/16W
R891	1-216-819-11	METAL	680	5%	1/16W

Ref.No	Part No.	Description	Remark
R892	1-216-841-11	METAL 47K 5%	1/16W
R893	1-216-817-11	METAL 470 5%	1/16W
R895	1-216-864-11	METAL 0 5%	1/16W
		<SWITCH>	
S705	1-692-088-41	SWITCH, TACTILE	
S706	1-571-684-11	SWITCH, TACTILE	
		<THERMISTOR>	
TH701	1-809-357-21	THERMISTOR, NTC (2125)	
		<CRYSTAL>	
X701	1-579-907-21	VIBRATOR, CERAMIC	
X702	1-579-070-41	VIBRATOR, CRYSTAL	
X703	1-579-906-21	VIBRATOR, CERAMIC	

****

Ref.No	Part No.	Description	Remark
	*A-8275-454-A	IF-28 BOARD, COMPLETE *********************	
	1-562-261-41	CONNECTOR, COAXIAL (BNC)	
		<CONNECTOR>	
CN1	1-506-487-11	PIN, CONNECTOR 8P	
CN2	1-506-487-11	PIN, CONNECTOR 8P	
CN3	1-564-014-11	PIN, CONNECTOR 4P	
CN4	1-506-486-11	PIN, CONNECTOR 7P	
CN5	1-506-485-11	PIN, CONNECTOR 6P	
		<DIODE>	
D1	8-719-108-12	DIODE RD9.1E-W	
D2	8-719-108-12	DIODE RD9.1E-W	
D3	8-719-108-12	DIODE RD9.1E-W	
D4	8-719-108-12	DIODE RD9.1E-W	
D5	8-719-108-12	DIODE RD9.1E-W	
D6	8-719-108-12	DIODE RD9.1E-W	
D7	8-719-108-12	DIODE RD9.1E-W	
D8	8-719-108-12	DIODE RD9.1E-W	
D9	8-719-108-12	DIODE RD9.1E-W	
D10	8-719-108-12	DIODE RD9.1E-W	
D11	8-719-108-12	DIODE RD9.1E-W	
D12	8-719-108-12	DIODE RD9.1E-W	
D13	8-719-108-12	DIODE RD9.1E-W	
D14	8-719-108-12	DIODE RD9.1E-W	
D15	8-719-400-18	DIODE MA152WK	
		<FILTER>	
FL1	1-236-738-11	FILTER, EMI	
FL2	1-236-738-11	FILTER, EMI	
FL3	1-236-738-11	FILTER, EMI	
FL4	1-236-738-11	FILTER, EMI	
FL5	1-236-738-11	FILTER, EMI	
FL6	1-236-738-11	FILTER, EMI	
FL7	1-236-738-11	FILTER, EMI	
FL8	1-236-738-11	FILTER, EMI	
FL9	1-236-738-11	FILTER, EMI	
FL10	1-236-738-11	FILTER, EMI	
FL11	1-236-738-11	FILTER, EMI	
FL12	1-236-738-11	FILTER, EMI	
FL13	1-236-738-11	FILTER, EMI	
FL14	1-236-738-11	FILTER, EMI	
		<JACK>	
J11	1-569-803-11	CONNECTOR, (S) TERMINAL 4P	
J12	1-569-803-11	CONNECTOR, (S) TERMINAL 4P	

Ref.No	Part No.	Description	Remark
		<TRANSISTOR>	
Q1	8-729-901-01	TRANSISTOR DTC144EK	
Q2	8-729-140-75	TRANSISTOR 2SD999-CLCK	
		<RESISTOR>	
R1	1-216-631-11	METAL 150 0.50%	1/10W
R2	1-216-631-11	METAL 150 0.50%	1/10W
R3	1-216-631-11	METAL 150 0.50%	1/10W
R4	1-216-631-11	METAL 150 0.50%	1/10W
R5	1-216-631-11	METAL 150 0.50%	1/10W
R6	1-216-631-11	METAL 150 0.50%	1/10W
R7	1-216-631-11	METAL 150 0.50%	1/10W
R8	1-216-631-11	METAL 150 0.50%	1/10W
R9	1-216-049-00	METAL 1K 5%	1/10W
R10	1-216-631-11	METAL 150 0.50%	1/10W
R11	1-216-631-11	METAL 150 0.50%	1/10W
R12	1-216-631-11	METAL 150 0.50%	1/10W
R13	1-216-631-11	METAL 150 0.50%	1/10W
R14	1-216-631-11	METAL 150 0.50%	1/10W
R15	1-216-631-11	METAL 150 0.50%	1/10W
		<RELAY>	
RL1	1-515-622-11	RELAY	
RL2	1-515-622-11	RELAY	
RL3	1-515-622-11	RELAY	
RL4	1-515-622-11	RELAY	
RL5	1-515-622-11	RELAY	
RL6	1-515-622-11	RELAY	
RL7	1-515-622-11	RELAY	
		<SWITCH>	
S1	1-516-789-XX	SLIDE SWITCH	

****

Ref.No	Part No.	Description	Remark
	*A-8275-461-A	IF-29 BOARD, COMPLETE *********************	
		<CAPACITOR>	
C301	1-163-009-11	CERAMIC 0.001uF 10%	50V
C303	1-124-589-11	ELECT 47uF 20%	16V
		<CONNECTOR>	
CN301	1-563-161-11	CONNECTOR, D-SUB (MOUNT TYPE) 25P	
CN302	1-506-491-11	PIN, CONNECTOR 12P	
CN303	*1-506-488-11	PIN, CONNECTOR 9P	
		<DIODE>	
D301	8-719-800-76	DIODE 1SS226	
D302	8-719-800-76	DIODE 1SS226	
		<FILTER>	
FL301	1-236-738-11	FILTER, EMI	
FL302	1-236-738-11	FILTER, EMI	
FL303	1-236-738-11	FILTER, EMI	
FL304	1-236-738-11	FILTER, EMI	
FL305	1-236-738-11	FILTER, EMI	
FL306	1-236-738-11	FILTER, EMI	
FL307	1-236-738-11	FILTER, EMI	
FL308	1-236-738-11	FILTER, EMI	
FL309	1-236-738-11	FILTER, EMI	
FL310	1-236-738-11	FILTER, EMI	

Ref.No	Part No.	Description	Remark
		<JACK>	
J301	1-507-967-11	JACK	
		<JUMPER>	
JR301	1-216-295-11	METAL GLAZE 0 5%	1/10W
		<RESISTOR>	
R301	1-216-089-91	METAL 47K 5%	1/10W
R302	1-216-025-00	METAL 100 5%	1/10W
		<SWITCH>	
S301	1-571-790-11	SWITCH, DIP 8P	
***			
	*A-8275-438-A	KY-15 BOARD, COMPLETE *********************	
		<CAPACITOR>	
C803	1-163-038-00	CERAMIC 0.1uF	25V
C804	1-163-009-11	CERAMIC 0.001uF 10%	50V
C805	1-163-038-00	CERAMIC 0.1uF	25V
		<CONNECTOR>	
CN801	*1-506-486-11	PIN, CONNECTOR 7P	
CN802	*1-506-486-11	PIN, CONNECTOR 7P	
CN803	1-506-493-11	PIN, CONNECTOR 14P	
CN804	*1-506-481-11	PIN, CONNECTOR 2P	
CN805	*1-563-863-21	SOCKET, CONNECTOR 26P	
CN806	1-506-484-11	PIN, CONNECTOR 5P	
		<DIODE>	
D802	8-719-800-76	DIODE 1SS226	
		<IC>	
IC802	8-759-988-13	IC LM393PS	
		<JUMPER>	
JR821	1-216-296-00	METAL GLAZE 0 5%	1/8W
JR822	1-216-295-11	METAL GLAZE 0 5%	1/10W
JR824	1-216-296-00	METAL GLAZE 0 5%	1/8W
JR825	1-216-296-00	METAL GLAZE 0 5%	1/8W
JR828	1-216-296-00	METAL GLAZE 0 5%	1/8W
JR829	1-216-295-11	METAL GLAZE 0 5%	1/10W
JR831	1-216-296-00	METAL GLAZE 0 5%	1/8W
JR832	1-216-296-00	METAL GLAZE 0 5%	1/8W
JR833	1-216-296-00	METAL GLAZE 0 5%	1/8W
JR834	1-216-296-00	METAL GLAZE 0 5%	1/8W
JR835	1-216-296-00	METAL GLAZE 0 5%	1/8W
		<TRANSISTOR>	
Q801	8-729-900-53	TRANSISTOR DTC114EK	
Q802	8-729-900-53	TRANSISTOR DTC114EK	
		<RESISTOR>	
R801	1-216-295-11	METAL 0 5%	1/10W
R802	1-216-295-11	METAL 0 5%	1/10W
R803	1-216-295-11	METAL 0 5%	1/10W
R804	1-216-295-11	METAL 0 5%	1/10W
R805	1-216-295-11	METAL 0 5%	1/10W

Ref.No	Part No.	Description	Remark
R806	1-216-295-11	METAL 0 5%	1/10W
R807	1-216-295-11	METAL 0 5%	1/10W
R808	1-216-295-11	METAL 0 5%	1/10W
R809	1-216-295-11	METAL 0 5%	1/10W
R810	1-216-295-11	METAL 0 5%	1/10W
R812	1-216-049-00	METAL 1K 5%	1/10W
R813	1-216-081-00	METAL 22K 5%	1/10W
R814	1-216-073-00	METAL 10K 5%	1/10W
R815	1-216-073-00	METAL 10K 5%	1/10W
R816	1-216-049-00	METAL 1K 5%	1/10W
R817	1-216-295-11	METAL 0 5%	1/10W
R818	1-216-295-11	METAL 0 5%	1/10W
R819	1-216-295-11	METAL 0 5%	1/10W
R820	1-216-295-11	METAL 0 5%	1/10W
***			
	*A-8275-451-A	PTC-27 BOARD, COMPLETE **********************	
		<CAPACITOR>	
C801	1-124-229-00	ELECT 33uF 20%	6.3V
		<CONNECTOR>	
CN816	1-506-468-11	PIN, CONNECTOR 3P	
CN817	1-506-470-11	PIN, CONNECTOR 5P	
		<IC>	
IC801	8-748-015-08	RAY CATCHER ELEMENT SBX8015-H	
		<RESISTOR>	
R811	1-216-029-00	METAL 150 5%	1/10W
***			
	*1-650-853-11	SU-10 BOARD ***********	
		<CAPACITOR>	
C905	1-165-319-11	CERAMIC 0.1uF	50V
		<CONNECTOR>	
CN916	*1-506-481-11	PIN, CONNECTOR 2P	
		<MOTOR>	
M901	1-541-309-11	MOTOR, L (RF-370C)	
***			
	*A-8275-437-A	S-25 BOARD, COMPLETE ********************	
		<CONNECTOR>	
CN811	*1-506-481-11	PIN, CONNECTOR 2P	
		<DIODE>	
D803	8-719-975-79	DIODE SLP255B-51-A	
		<RESISTOR>	
R830	1-216-029-00	METAL 150 5%	1/10W
***			

SW-39 SW-41 SW-42 SW-208 SW-210 SW-211 SW-212 SW-213

Ref.No	Part No.	Description	Remark
	*A-8275-443-A	SW-39 BOARD, COMPLETE *********************	
		<CONNECTOR>	
CN913	1-506-482-11	PIN, CONNECTOR 3P	
		<PHOTO INTERRUPTER>	
PH901	8-749-923-97	PHOTO INTERRUPTER GP2S40K	

****

Ref.No	Part No.	Description	Remark
	*A-8275-442-A	SW-41 BOARD, COMPLETE *********************	
		<CONNECTOR>	
CN915	1-506-482-11	PIN, CONNECTOR 3P	
		<PHOTO INTERRUPTER>	
PH903	8-719-991-24	PHOTO TRANSISTOR GP1S23	

****

Ref.No	Part No.	Description	Remark
	*A-8275-444-A	SW-42 BOARD, COMPLETE *********************	
		<CONNECTOR>	
CN917	1-506-482-11	PIN, CONNECTOR 3P	
		<PHOTO INTERRUPTER>	
PH904	8-719-939-05	PHOTO INTERRUPTER GP1S54	

****

Ref.No	Part No.	Description	Remark
	*A-8275-433-A	SW-208 BOARD, COMPLETE *********************	
		<CONNECTOR>	
CN801	*1-580-056-21	PIN, CONNECTOR 3P	
		<PHOTO INTERRUPTER>	
PH801	8-749-923-97	PHOTO INTERRUPTER GP2S40K	

****

Ref.No	Part No.	Description	Remark
	*A-8275-439-A	SW-210 BOARD, COMPLETE *********************	
		<CONNECTOR>	
CN803	1-580-057-11	PIN, CONNECTOR 4P	
		<PHOTO INTERRUPTER>	
PH803	8-749-923-97	PHOTO INTERRUPTER GP2S40K	
		<SWITCH>	
S803	1-572-126-21	SWITCH, PUSH (1 KEY)	

****

Ref.No	Part No.	Description	Remark
	*A-8275-434-A	SW-211 BOARD, COMPLETE *********************	
		<PHOTO INTERRUPTER>	
PH804	8-749-923-97	PHOTO INTERRUPTER GP2S40K	
PH805	8-749-923-97	PHOTO INTERRUPTER GP2S40K	
		<HARNESS>	
W801	1-648-128-11	PC BOARD, FP-38 FLEXIBLE	

****

Ref.No	Part No.	Description				Remark
	*A-8275-436-A	SW-212 BOARD, COMPLETE *********************				
		<CONNECTOR>				
C810	1-124-779-00	ELECT	10uF	20%	16V	
C811	1-164-004-11	CERAMIC	0.1uF	10%	25V	
C812	1-163-038-00	CERAMIC	0.1uF		25V	
C813	1-128-530-11	ELECT	33uF	20%	10V	
C814	1-126-200-11	ELECT	10uF	20%	16V	
C815	1-164-004-11	CERAMIC	0.1uF	10%	25V	
		<CONNECTOR>				
CN806	1-569-775-11	PIN, CONNECTOR (SMD) 5P				
CN811	1-580-057-11	PIN, CONNECTOR 4P				
CN813	*1-580-056-21	PIN, CONNECTOR (SMD) 3P				
CN814	*1-580-055-21	PIN, CONNECTOR 2P				
		<DIODE>				
D802	8-719-421-15	DIODE MA8027-L				
		<IC>				
IC810	8-759-998-98	IC LM358DR-E1				
		<PHOTO INTERRUPTER>				
PH806	8-749-923-97	PHOTO INTERRUPTER GP2S40K				
PH807	8-749-923-97	PHOTO INTERRUPTER GP2S40K				
		<RESISTOR>				
R802	1-216-295-11	METAL	0	5%	1/10W	
R810	1-216-073-00	METAL	10K	5%	1/10W	
R811	1-216-065-00	METAL	4.7K	5%	1/10W	
R812	1-216-073-00	METAL	10K	5%	1/10W	
R813	1-216-089-91	METAL	47K	5%	1/10W	
R814	1-216-089-91	METAL	47K	5%	1/10W	
R815	1-216-065-00	METAL	4.7K	5%	1/10W	
R816	1-216-073-00	METAL	10K	5%	1/10W	
R817	1-216-089-91	METAL	47K	5%	1/10W	
R818	1-216-089-91	METAL	47K	5%	1/10W	
R819	1-216-083-00	METAL	27K	5%	1/10W	
R820	1-216-033-00	METAL	220	5%	1/10W	
R821	1-216-295-11	METAL	0	5%	1/10W	

****

Ref.No	Part No.	Description	Remark
	*A-8275-441-A	SW-213 BOARD, COMPLETE *********************	
	*3-949-924-01	HOLDER, P SENSOR	
		<CONNECTOR>	
CN808	1-569-775-21	PIN, CONNECTOR 5P	
		<PHOTO INTERRUPTER>	
PH808	8-749-923-97	PHOTO INTERRUPTER GP2S40K	
PH809	8-749-923-97	PHOTO INTERRUPTER GP2S40K	

****

SW-214 | SW-215 | SW-216 | SW-217 | SWITCHING REGULATOR

Ref.No	Part No.	Description		Remark
	*A-8275-453-A	SW-214 BOARD, COMPLETE **********************		
		<CONNECTOR>		
CN809	1-580-055-21	PIN, CONNECTOR 2P		
		<SWITCH>		
S801	1-570-407-11	SWITCH, SLIDE		
**				
	*A-8275-435-A	SW-215 BOARD, COMPLETE **********************		
**				
	*A-8275-440-A	SW-216 BOARD, COMPLETE **********************		
**				
	*A-8275-452-A	SW-217 BOARD, COMPLETE **********************		
		<CONNECTOR>		
CN810	*1-580-056-21	PIN, CONNECTOR (SMD) 3P		
		<PHOTO INTERRUPTER>		
PH810	8-749-923-97	PHOTO INTERRUPTER GP2S40K		
**				
	⚠*1-413-946-11	SWITCHING, REGULATOR ********************		
	9-904-821-01	FUSE CLIP		
	*9-907-116-01	HEAT SINK (IC101, IC102)		
	*9-907-117-01	HEAT SINK (IC103)		
	*9-907-118-01	HEAT SINK (IC205-IC208)		
	*9-907-119-01	PC BOARD		
	9-907-120-01	SPACER		
	*9-907-121-01	SHEET, INSULATING		
	*9-907-122-01	SHEET, INSULATING		
		<CAPACITOR>		
C101	1-136-192-11	CERAMIC	0.33MF	250V
C102	9-902-038-01	CERAMIC	0.22MF	250V
C103	9-907-095-01	CERAMIC	2200PF	2500
C104	9-907-095-01	CERAMIC	2200PF	2500
C105	9-907-096-01	CERAMIC	4700PF	250V
C106	9-907-097-01	ELECT	470MF	200V
C107	9-900-522-01	CERAMIC	2200PF	250V
C108	9-900-525-01	CERAMIC	0.047MF	400V
C109	9-907-098-01	CERAMIC	220PF	1KV
C110	1-130-491-00	CERAMIC	0.047MF	50V
C111	1-124-122-11	ELECT	100MF	50V
C112	1-126-967-11	ELECT	47MF	50V
C113	9-900-525-01	CERAMIC	0.047MF	400V
C114	9-907-098-01	CERAMIC	220PF	1KV
C115	1-128-578-91	ELECT	1MF	100V
C116	1-130-495-00	FILM	0.1MF	50V
C118	9-907-095-01	CERAMIC	2200PF	250V
C119	9-907-095-01	CERAMIC	2200PF	250V
C120	9-907-096-01	CERAMIC	4700PF	250V
C121	9-907-097-01	ELECT	470MF	200V
C122	1-130-491-00	CERAMIC	0.047MF	50V
C123	1-136-189-00	CERAMIC	0.1MF	250V
C124	1-136-189-00	CERAMIC	0.1MF	250V
C125	9-907-099-01	ELECT	4.7MF	400V
C126	1-124-903-11	ELECT	1MF	50V
C201	9-907-113-01	CERAMIC	1000PF	1KV
C202	9-907-114-01	ELECT	1000MF	35V
C203	1-124-906-11	ELECT	4.7MF	50V
C204	9-907-114-01	ELECT	1000MF	35V
C205	1-126-965-51	ELECT	22MF	50V
C207	1-130-483-00	FILM	0.01MF	50V
C208	9-907-113-01	CERAMIC	1000PF	1KV
C209	1-126-927-11	ELECT	2200MF	10V
C210	1-126-927-11	ELECT	2200MF	10V
C211	1-124-903-11	ELECT	1MF	50V
C212	1-126-926-11	ELECT	1000MF	10V
C213	1-126-933-11	ELECT	100MF	10V
C214	1-126-933-11	ELECT	100MF	10V
C215	9-907-113-01	CERAMIC	1000PF	1KV
C216	1-124-557-11	ELECT	1000MF	25V
C217	1-216-933-11	ELECT	100MF	16V
C218	1-126-926-11	ELECT	1000MF	10V
C219	1-126-933-11	ELECT	100MF	10V
C220	1-130-483-00	FILM	0.01MF	50V
C222	1-124-122-11	ELECT	100MF	50V
		<CONNECTOR>		
CN1	9-907-104-01	CONNECTOR 4P		
CN2	9-907-105-01	CONNECTOR 2P		
CN3	9-907-105-01	CONNECTOR 2P		
CN901	1-560-892-00	CONNECTOR 4P		
CN902	1-560-894-00	CONNECTOR 6P		
CN903	1-568-792-11	CONNECTOR 15P		
CN904	1-506-468-11	CONNECTOR 3P		
CN905	1-506-468-11	CONNECTOR 3P		
CN906	1-564-013-31	CONNECTOR 3P		
CN907	1-568-779-11	CONNECTOR 2P		
		<DIODE>		
D101	8-719-500-58	DIODE D3SBA60		
D102	8-719-030-25	DIODE AG01A		
D103	9-904-898-01	DIODE AU02A		
D104	9-907-090-01	DIODE RD47E		
D105	8-719-116-86	DIODE RD24JSB		
D106	8-719-200-02	DIODE 10E-2		
D107	9-900-514-01	DIODE MA165		
D108	9-902-050-01	DIODE ERA15-16		
D109	9-900-514-01	DIODE MA165		
D110	9-902-050-01	DIODE ERA15-16		
D111	9-902-050-01	DIODE ERA15-16		
D201	8-719-501-34	DIODE S3VC40R		
D202	8-719-501-34	DIODE S3VC40R		
D203	8-719-200-02	DIODE 10E-2		
D204	9-900-535-01	DIODE AU02Z		
D205	9-904-797-01	DIODE RK44		
D206	9-904-797-01	DIODE RK44		
D207	8-719-501-34	DIODE S3VC40R		
D208	8-719-160-68	DIODE RD18F		
D209	8-719-982-04	DIODE ERB81-004		
D210	9-904-799-01	DIODE MA2120		
		<FUSE>		
F101	9-907-103-01	FUSE 4A 250V		
F102	9-907-103-01	FUSE 4A 250V		

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

SWITCHING REGULATOR

Ref.No	Part No.	Description		Remark
		<IC>		
IC101	9-904-782-01	IC STR-S6525		
IC102	8-759-977-63	IC MA2830		
IC103	8-749-923-66	IC STR83145		
IC201	8-759-420-19	IC AN1431T		
IC202	8-759-135-80	IC UPC358C		
IC203	8-759-420-19	IC AN1431T		
IC204	8-759-420-19	IC AN1431T		
IC205	8-749-920-43	IC SI-3050CA		
IC206	8-749-921-21	IC SI-3120C		
IC207	8-749-920-43	IC SI-3050CA		
IC208	8-749-920-43	IC SI-3050CA		
		<COIL>		
L101	9-907-102-01	FILTER		
L102	9-907-102-01	FILTER		
L103	9-904-796-01	BEAD CORE		
L104	9-904-796-01	BEAD CORE		
L201	9-902-553-01	BEAD CORE		
L202	9-902-553-01	BEAD CORE		
L203	9-907-112-01	CHOKE COIL		
L204	9-902-553-01	BEAD CORE		
L205	9-907-112-01	CHOKE COIL		
L206	9-902-553-01	BEAD CORE		
		<PHOTO COUPLER>		
PC101	9-907-091-01	PHOTO COUPLER PC111		
PC102	9-907-091-01	PHOTO COUPLER PC111		
PC201	8-719-161-00	PHOTO COUPLER PS2501		
		<TRANSISTOR>		
Q101	9-904-781-01	TRANSISTOR 2SC2061		
Q201	8-729-900-80	TRANSISTOR DTC114ES		
Q202	8-729-900-80	TRANSISTOR DTC114ES		
Q203	8-729-900-80	TRANSISTOR DTC114ES		
Q204	8-729-900-80	TRANSISTOR DTC114ES		
Q205	8-729-900-80	TRANSISTOR DTC114ES		
		<RESISTOR>		
R101	1-202-719-00	SOLID	1M	1/2W
R102	9-904-783-01	THERMISTOR	5	25℃
R103	1-218-642-11	FILM	100K	1W
R104	1-218-642-11	FILM	100K	1W
R105	1-260-127-11	CARBON	220K	1/2W
R106	1-260-127-11	CARBON	220K	1/2W
R107	1-215-925-11	FILM	22K	3W
R108	1-215-925-11	FILM	22K	3W
R109	1-215-882-00	FILM	22	2W
R110	9-907-093-01	CEMENT	0.15	2W
R111	9-907-094-01	CARBON	1	1/2W
R112	1-260-080-11	CARBON	27	1/2W
R113	1-247-855-31	CARBON	10K	1/4W
R114	1-249-412-11	CARBON	390	1/4W
R115	1-249-437-11	CARBON	47K	1/4W
R116	1-249-411-11	CARBON	330	1/4W
R117	1-249-423-11	CARBON	3.3K	1/4W
R118	1-247-883-00	CARBON	150K	1/4W
R119	1-247-883-00	CARBON	150K	1/4W
R120	1-249-441-11	CARBON	100K	1/4W
R121	1-215-928-11	FILM	68K	3W
R122	1-215-928-11	FILM	68K	3W
R123	1-215-863-11	CARBON	100	1W
R124	1-215-863-11	CARBON	100	1W
R125	1-260-091-11	CARBON	220	1/2W
R126	9-904-783-01	THERMISTOR	5	25℃
R127	1-260-127-11	CARBON	220K	1/2W
R128	1-260-127-11	CARBON	220K	1/2W
R129	1-249-389-11	CARBON	4.7	1/4W
R130	1-247-883-00	CARBON	150K	1/4W
R131	1-249-408-11	CARBON	180	1/4W
R132	1-249-441-11	CARBON	100K	1/4W
R201	1-215-916-00	FILM	680	3W
R202	1-215-916-00	FILM	680	3W
R203	1-260-099-11	CARBON	1K	1/2W
R204	1-247-855-31	CARBON	10K	1/4W
R205	1-247-855-31	CARBON	10K	1/4W
R206	1-249-420-11	CARBON	1.8K	1/4W
R207	1-244-417-11	CARBON	1K	1/4W
R208	1-249-423-11	CARBON	3.3K	1/4W
R209	1-249-415-11	CARBON	680	1/2W
R210	9-902-556-01	METAL	1	1/4W
R211	1-247-855-31	CARBON	10K	1/4W
R212	9-904-801-01	FILM	8.25K	1/4W
R213	1-247-855-31	CARBON	10K	1/4W
R214	1-247-855-31	CARBON	10K	1/4W
R215	1-247-855-31	CARBON	10K	1/4W
R216	1-247-855-31	CARBON	10K	1/4W
R217	1-249-425-11	CARBON	4.7K	1/4W
R218	1-247-855-31	CARBON	10K	1/4W
R219	1-247-855-31	CARBON	10K	1/4W
R220	1-214-736-00	FILM	2K	1/4W
R221	1-214-753-00	FILM	10K	1/4W
R222	1-260-083-11	CARBON	47	1/2W
R223	1-244-417-11	CARBON	1K	1/4W
R224	1-249-419-11	CARBON	1.5K	1/4W
R225	1-247-855-31	CARBON	10K	1/4W
R226	9-907-107-01	METAL OXIDE	430	1/4W
	9-907-094-01	METAL OXIDE	1.2K	1/4W
R227	9-907-108-01	CARBON	0.22	1/4W
R228	9-907-108-01	CARBON	0.22	1/4W
R229	9-907-109-01	METAL OXIDE	1.3K	1/4W
	9-907-107-01	METAL OXIDE	430	1/4W
R230	1-249-416-11	CARBON	820	1/4W
R231	1-249-414-11	CARBON	560	1/4W
		<RELAY>		
RL201	9-907-115-01	RELAY		
		<TRANSFORMER>		
T101	9-907-100-01	SWITCHING		
T102	9-907-101-01	SWITCHING		
		<VARIABLE RESISTOR>		
VR201	9-907-110-01	RES, VER, CARBON	2K	
VR202	9-907-111-01	RES, VER, CARBON	500	
VR203	1-238-570-11	RES, VER, CARBON	2K	
VR204	1-238-570-11	RES, VER, CARBON	2K	
		<MISCELLANEOUS>		
TC101	9-907-092-01	THERMAL CUT OFF		

****

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No	Part No.	Description	Remark
		MISCELLANEOUS *************	
	⚠ *1-413-946-11	SWITCHING REGULATOR	
	1-507-195-21	SPECIAL REMOTE CONTROL JACK	
	1-541-684-41	MOTOR, DC	
	1-500-114-11	HEAD, THERMAL	
	⚠ 1-554-880-12	SWITCH, PUSH (AC POWER)(1 KEY)	
	⚠ 1-580-375-11	INLET 3P	
	1-692-855-11	(LCD) KEYBOARD, FFC WITH	
	1-698-019-31	MOTOR, DC (FAN)	
	1-751-235-11	CABLE, FLAT (FVM-2)	
	1-751-238-11	CABLE, FLAT (FHH-1)	
	1-751-239-11	CABLE, FLAT (FHH-2)	
	1-765-051-11	WIRE, FLAT TYPE (7 CORE)	
	1-765-052-11	WIRE, FLAT TYPE (16 CORE)	
	1-810-412-11	LCD MODULE	
	*1-952-970-11	HARNESS, SUB (HMSW42)	
	*1-952-971-11	HARNESS, SUB (HMDS)	
	*1-952-972-11	HARNESS, SUB (HMPW)	
	*1-952-973-11	HARNESS, SUB (SPW)	
	*1-952-974-11	HARNESS, SUB (DSSW39)	
	*1-952-975-11	HARNESS, SUB (HMSW41)	
	1-952-976-11	HARNESS, SUB (DSSU10)	
	1-952-977-11	HARNESS, SUB (REMOTE)	
	*1-952-978-11	HARNESS, SUB (KYPTC)	
	1-952-980-11	HARNESS, SUB (AC(IN))	
	1-952-981-11	HARNESS, SUB (AC(SW))	
	*1-952-983-11	HARNESS (DC (VAFMDS))	
	*1-952-985-11	HARNESS (FMKY(LCD))	
	*1-952-987-11	HARNESS, SUB (VAFM)	
	*1-952-988-11	HARNESS (VIF019)	
	*1-952-989-11	HARNESS (IFFM019)	

****

ACCESSORY & PACKING MATERIALS
****

Ref.No	Part No.	Description	Remark
	A-8310-002-B	TRAY ASSY, PAPER	
	1-465-508-21	COMMANDER, REMOTE	
	⚠ 1-551-631-41	CORD, POWER	
	1-557-637-11	CABLE, COMMANDER	
	3-183-201-01	ADJUSTMENT BOARD, LENGTH	
	*3-183-227-02	TRAY	
	*3-183-920-01	INDIVIDUAL CARTON (UP-1800EPM)	
	*3-183-924-01	INDIVIDUAL CARTON (UP-1850EPM)	
	*3-183-929-01	CUSHION (UPPER)	
	*3-183-930-01	CUSHION (LOWER)	
	⚠ 3-758-133-11	MANUAL, INSTRUCTION	
	*3-694-922-01	SHEET, PROTECTION	

****

Ref.No	Part No.	Description	Remark
		HARDWARE LIST *************	
	7-621-255-15	SCREW +P 2X3	
	7-621-259-35	SCREW +P 2.6X5	
	7-621-284-40	SCREW +P 2.6X10	
	7-621-759-75	+PSW, 2.6X10	
	7-682-166-01	SCREW +P 4X20	
	7-682-645-01	SCREW +PS 3X4	
	7-682-647-09	SCREW +PS 3X6	
	7-685-103-19	SCREW +P 2X5 TYPE2 NON-S	
	7-685-134-19	SCREW +P 2.6X8 TYPE2 NON-SLIT	
	7-685-534-19	SCREW +BTP 2.6X8 TYPE2 N-S	
	7-685-645-79	SCREW +BVTP 3X6 TYPE2 IT-3	
	7-685-646-79	SCREW +BVTP 3X8 TYPE2 IT-3	
	7-685-852-01	SCREW +BVTT 2X5 (S)	
	7-685-862-01	SCREW +BVTT 2.6X6 (S)	

****

SECTION 7
ELECTRICAL ADJUSTMENT

7-1. PREPARATION BEFORE ADJUSTMENT

The measurement equipment below is used for adjustment.

7-1-1. Equipment Required

1) Monitor television
2) Signal generator TSG-131, TSG-131A or 1411
   RGB sync (Full field 75% white, and color-bar 100% white)
3) Dual-trace oscilloscope with band of more than 30 MHz and delay mode
   (Use a 10:1 probe unless otherwise specified.)
4) Frequency counter
5) Vectorscope
6) Digital voltmeter
7) Video print paper
8) Video print cartridge

7-1-2. Connection of the Equipment

As shown in Fig. 7-1, each measurement equipment is connected according to instructions from the input terminal (S video or video R.G.B) to perform the adjustment. Each input terminal is specified in a signal column by parentheses. If not specified, either input terminal can be used.

Note: For the adjustment specified as an S video input terminal, the product specifications of this unit may not be satisfied when the adjustment is performed by a video input terminal. Be sure to perform the adjustment according to instructions.
When the adjustment is performed using the VTR with an S video output terminal as a signal source, the performance of this unit varies depending on the VTR. Use the pattern generator with a Y/C separation output terminal as far as possible.

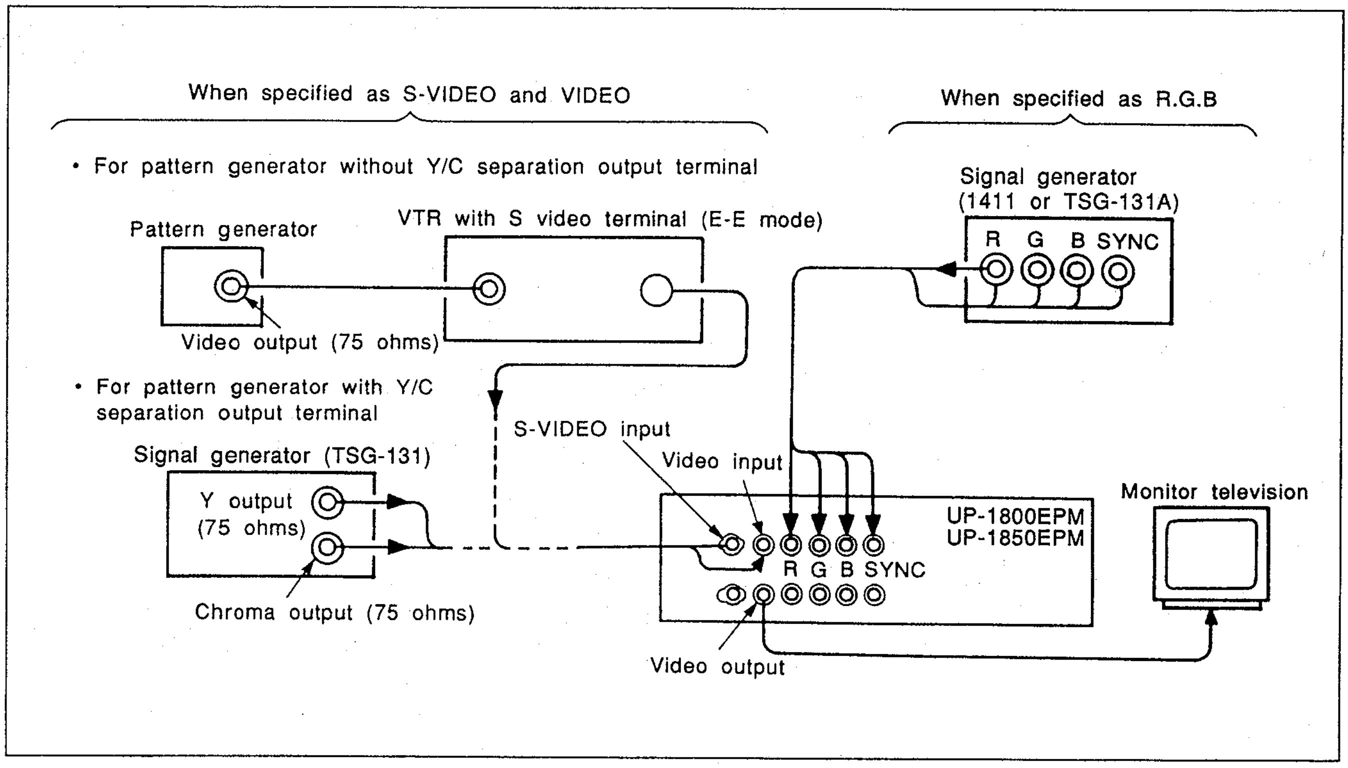
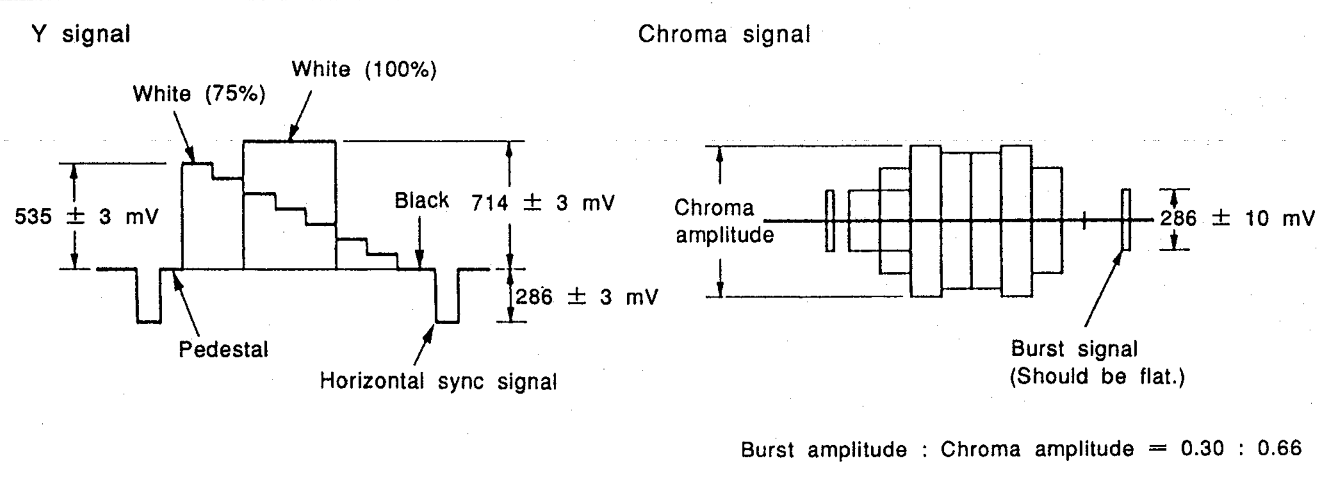

When specified as S-VIDEO and VIDEO
• For pattern generator without Y/C separation output terminal
Pattern generator
VTR with S video terminal (E-E mode)
Video output (75 ohms)
• For pattern generator with Y/C separation output terminal
Signal generator (TSG-131)
Y output (75 ohms)
Chroma output (75 ohms)
S-VIDEO input
Video input
When specified as R.G.B
Signal generator (1411 or TSG-131A)
R G B SYNC
UP-1800EPM
UP-1850EPM
R G B SYNC
Video output
Monitor television

Fig. 7-1.

7-1-3. Confirmation of the Input Signal

The video signal generated from a pattern generator is used for video circuit adjustment as an adjustment signal. Therefore, it is necessary that this video output signal satisfies the required specification.

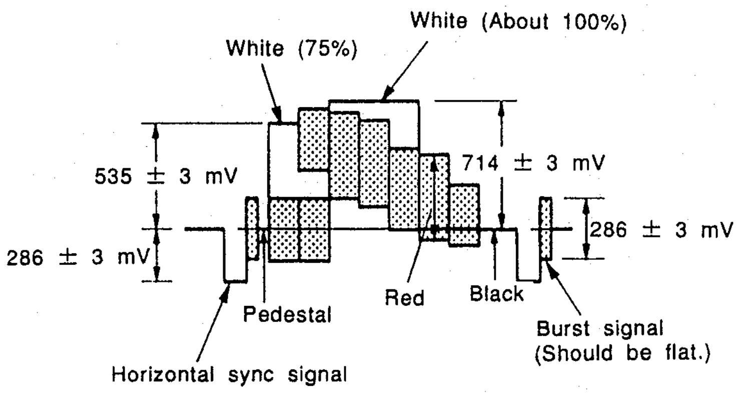
1. During S video (S VIDEO) input
Connect an oscilloscope to the Y signal terminal of the S video input terminal, and confirm that the sync signal of a Y signal is 286 mV, the amplitude of the video portion is 714 mV, and the setup level is 0 mV. (When the VTR with an S video output terminal is used, confirm that no chroma signal and burst signal remain.) Moreover, connect an oscilloscope to the chroma signal terminal of the S video input terminal, and confirm that the burst signal amplitude of a chroma signal is flat (286 mV) and that the amplitude ratio of a burst signal to a chroma signal is 0.30 : 0.66. The Y signal and chroma signal used for the adjustment are shown in Fig. 7-2.
The setup level is the potential difference between the black and pedestal levels.



Y signal
White (100%)
White (75%)
535 ± 3 mV
Black
714 ± 3 mV
286 ± 3 mV
Pedestal
Horizontal sync signal
Chroma signal
Chroma amplitude
286 ± 10 mV
Burst signal
(Should be flat.)
Burst amplitude : Chroma amplitude = 0.30 : 0.66

Fig. 7-2. Color-Bar Signal in Pattern Generator (during 75-Ohm Termination)

2. During video (VIDEO) input
Connect an oscilloscope to the video input terminal, and confirm that the sync signal amplitude of a video signal is 286 mV, the amplitude of the video portion is 714 mV, the setup level is 0 mV, the amplitude of a burst signal is flat (286 mV), and the level ratio of a burst signal to a "red" signal is 0.30 : 0.66.
The video signal (color-bar) used for the adjustment is shown in Fig. 7-3.



White (About 100%)
White (75%)
535 ± 3 mV
714 ± 3 mV
286 ± 3 mV
286 ± 3 mV
Red
Black
Pedestal
Horizontal sync signal
Burst signal
(Should be flat.)

Fig. 7-3. Color-Bar Signal in Pattern Generator (during 75-Ohm Termination)

7-1-4. How to Operate Adjustment Remote Controller RM-95 (J-6082-053-A)

Insert the RM-95 terminal into J1 LANC jack on the VA-14 board.

Before performing each adjustment, reset the corresponding protector as shown in the table below.

Page	6	Data	80	Address	00

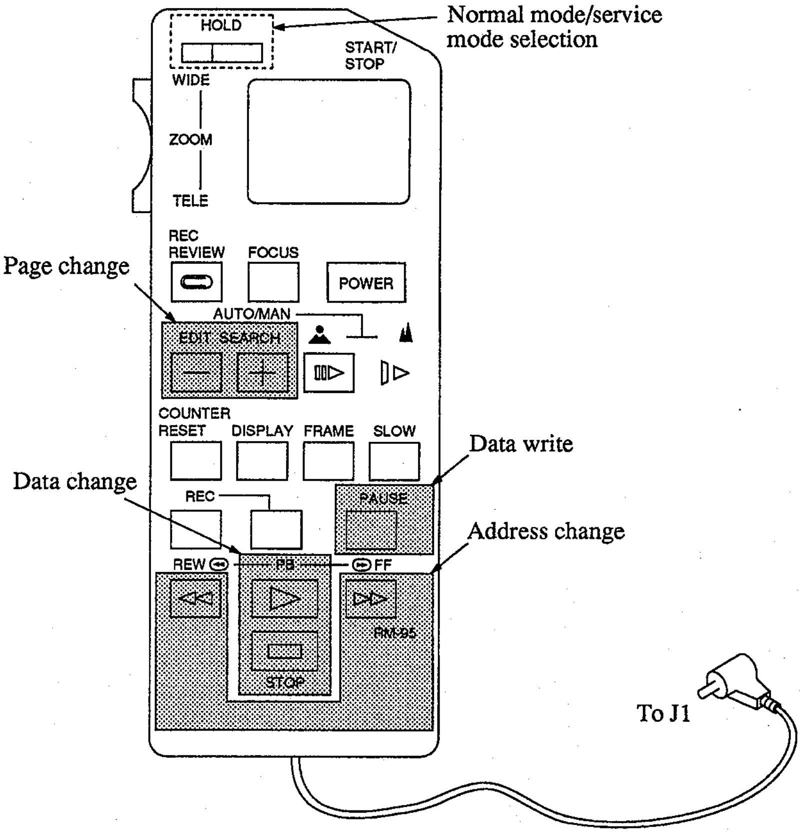
However, any reset is not required during continuous adjustment.
Press the PAUSE button for every adjustment item and write each data.

1. Menu setting

The menu is set in the initial state (refer to the table below).

Number of prints	1
Memo	No memo print
Memory setting	Standard
Print setting	Standard
Picture quality setting	Standard

Adjustment remote controller RM-95 (J-6082-053-A)

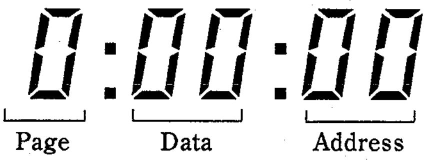

HOLD
Normal mode/service mode selection
START/STOP
WIDE
ZOOM
TELE
REC REVIEW
FOCUS
POWER
Page change
AUTO/MAN
EDIT SEARCH
COUNTER RESET
DISPLAY
FRAME
SLOW
Data write
Data change
REC
PAUSE
Address change
REW
PB
FF
RM-95
STOP
To J1

7-1-5. Service Mode

1. Setting the service mode

The service mode is classified into an adjustment mode that adjusts the EVR and a test mode that displays the state of the unit.
The test mode and adjustment mode are entered if the adjustment remote controller (with the HOLD switch set to HOLD) is connected.

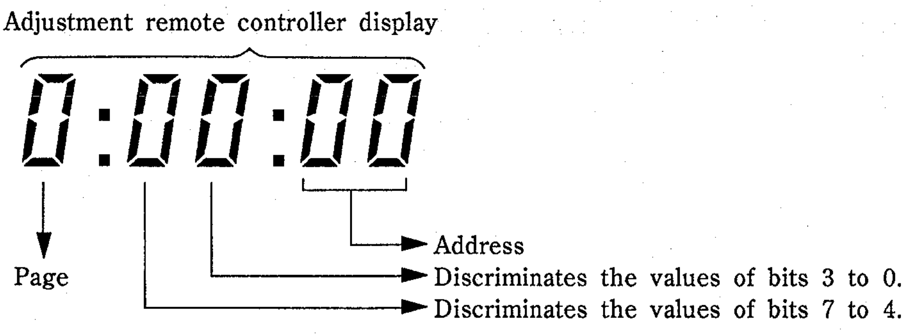
LCD display of the adjustment remote controller


0:00:00
Page
Data
Address

2. Discrimination of the bit value

In subsequent items, it is necessary to discriminate the bit value by the display data of an adjustment remote controller.

On whether the bit value is "1" or "0", discriminate according to the data shown in the table below.


Adjustment remote controller display
0:00:00
Page
Address
Discriminates the values of bits 3 to 0.
Discriminates the values of bits 7 to 4.

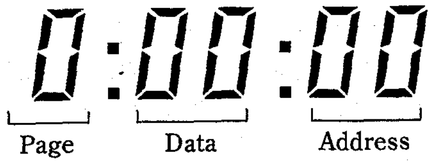
	Remote controller display	Bit value			
		Bit 3 or 7	Bit 2 or 6	Bit 1 or 5	Bit 0 or 4
	0	0	0	0	0
	1	0	0	0	1
	2	0	0	1	0
	3	0	0	1	1
	4	0	1	0	0
	5	0	1	0	1
	6	0	1	1	0
	7	0	1	1	1
Ⓐ→	8	1	0	0	0
	9	1	0	0	1
	A(A)	1	0	1	0
	B(b)	1	0	1	1
	C(c)	1	1	0	0
	D(d)	1	1	0	1
Ⓑ→	E(E)	1	1	1	0
	F(F)	1	1	1	1

(Example) When the display data of the remote controller is "8E", the values of bits 7 to 4 can be discriminated by column Ⓐ, and the values of bits 3 to 0 can be discriminated by column Ⓑ.

Command name	Function	Command button
Page Up	Increments the page by one.	Edit Search (+)
Page Down	Decrements the page by one.	Edit Search (−)
Address Up	Increments the address by one.	Fast Forward (▷▷)
Address Down	Decrements the address by one.	Rewind (◁◁)
Data Up	Increments the data by one.	Play Back (▷)
Data Down	Decrements the data by one.	Stop (□)
Store	Writes data in an EE-PROM RAM.	Pause (⏸)

3. Entering the test signal (Transmission to memory control)

LCD display of the adjustment remote controller



1) Insert the RM-95 into the control terminal (J-1 on the VA-14 board).
2) Set the HOLD switch of the RM-95 to the service mode. (Usually set to the service mode.)
3) Turn on the power of the UP-1800EPM/1850EPM and set each signal as shown below.

※ The input signal is a non-signal.

[Color-bar signal]

Page	A	Data	2b	Address	16

[Stairstep signal (H)]

Page	A	Data	27	Address	16

[Stairstep signal (V)]

Page	A	Data	28	Address	16

[Ramp signal (H)]

Page	A	Data	29	Address	16
Page	A	Data	2C	Address	16

[Ramp signal(V)]

Page	A	Data	20	Address	16

4. Infrared remote controller check

Page	7	Data		Address	07

※ The reception-time state of an infrared remote controller can be confirmed by the number of display data items.

Data	Reception-time state	Data	Reception-time state
10	SOURCE/MEMORY	43	EXEC
11	Memory	14	STOP
13	Print	49	MEMORY PAGE
30	UP	5D	Print quantity +
31	DOWN	5E	Print quantity −
32	LEFT	3C	Color adjustment
33	RIGHT	4B	MULTI PICTURE
42	MENU		

5. Key input control check (1)

Page	A	Data		Address	15

※ Write the data below and press the (PAUSE⏸ button).
The state obtained when the key was pressed is then entered.

Data	Key input	Data	Key input
02	STOP	0A	MEMORY PAGE
08	PRINT	10	COLOR ADJUST
0E	PRINT QTY−	16	EXEC
0C	PRINT QTY+	1C	UP
14	MENU	24	SERVICE OFF
1A	RIGHT	06	MEMORY IN
22	SERVICE ON	12	MULTI PICTURE
04	SOURCE/MEMORY	18	LEFT

6. Key input control check (2)

Page	A	Data		Address	15

※ Write the data below and press the (PAUSE⏸ button).
The state obtained when the key was pressed is then entered.

Data	Key input
1E	DOWN
26	DIP SWITCH

7. LED control check

Page	7	Data		Address	14

※ The LED is made turned on forcibly.

Data	Operation
00	Normal
01	Only the error LED ( ) lights.
02	Only the print LED ( ) lights.

8. A/D conversion data check

Page	8	Data		Address	08 to 0A

Address	
08	Head Temp (IC708 (51) pin)
09	Room Temp (IC708 ㊿ pin)
0A	SWITCH (IC708 ㊾ pin)

9. Buzzer sound check

Page	7	Data		Address	16

※ Write any data and press the PAUSE button. The buzzer sounds three times.

10. Sharpness adjustment

Page	7	Data		Address	40

Data	Level position
F9	MIN
00	CENTER
07	MAX

※ Write the above data and press the PAUSE button. The sharpness data is then changed.

11. Picture quality set check

Page	7	Data		Address	45 to 4A

Offset data	Level position	Gain data
C8	MIN	3F
00	CENTER	80
38	MAX	E3

Address		
45	B	Offset level
46	G	
47	R	
48	B	GAIN
49	G	
4A	R	

12. Paper delivery arm position check

Page	8	Data		Address	05

Data	Position
0E	NULL
00	Home position
01	Print position

13. SIRCS code check

Page	A	Data		Address	07

※ The SIRCS code that is currently received can be confirmed.

Data		Data	
00	No input	32	LEFT
13	PRINT	42	MENU
31	DOWN	4B	MULTI PICTURE
3C	COLOR, ADJUST	5D	PRINT QTY+
49	MEMORY, PAGE	11	MEMORY IN
5E	PRINT QTY−	30	UP
10	SOURSE/MEMORY	33	RIGHT
14	STOP	43	EXEC

14. System control ROM version check

Page	A	Data		Address	01

※ The numeric value displayed in data is the ROM version at that time.
※ The write operation (PAUSE) is impossible.

15. Picture quality size check

Page	7	Data		Address	70

Data	Size
00	NARROW
01	NORMAL
02	WIDE

16. Input signal selection check

Page	7	Data		Address	71

Data	Input signal
00	VIDEO
01	S-VIDEO
02	R.G.B

※ An input signal can be set when the PAUSE key is set to ON.

17. THRU/E-E check

Page	7	Data		Address	72

Data	
00	EE
01	THRU

※ An input signal can be set when the PAUSE key is set to ON.

18. AGC ON/OFF check

Page	7	Data		Address	73

Data	
00	OFF
01	ON

※ The AGC can be turned ON and OFF when the PAUSE key is set to ON.

19. SYNC selection check

Page	7	Data		Address	74

Data	
00	Internal SYNC
01	External SYNC

※ A SYNC signal can be selected when the PAUSE key is set to ON.

20. SYNC ON GREEN check

Page	7	Data		Address	74

Data	
00	OFF
01	ON

※ A SYNC ON GREEN signal can be set when the PAUSE key is set to ON.

21. Error code check

Page	A	Data		Address	12

※ Trouble data (contents) detected by system control

Data	Contents of trouble	Data	Contents of trouble
00	Mechanical control communication is impossible.	01	Initialization time is exceeded.
02	Print time is exceeded.	03	Mechanical control communication error
04	Liquid-crystal initialization error	05	Mode control communication error
06	Memory control initialization error	07	Liquid-crystal initialization error
08	Mode control initialization error	09	RS-232C communication error
11	Head position error/during initialization	12	Head position error/during stop
13	Head position error/during paper supply	14	Head position error/during print
15	Head position error/during paper delivery	21	Roller position error/during initialization
22	Roller position error/during stop	23	Roller position error/during paper supply
24	Roller position error/during print	25	Roller position error/during paper delivery
31	Paper jamming/during initialization	32	Paper jamming/during stop
33	Paper jamming/during paper supply	34	Paper jamming/during print
35	Paper jamming/during paper delivery	41	Ribbon door open
51	Muting time is exceeded.	52	Memory control communication error
53	EE-PROM write/read error	81	Paper supply error
82	Printing paper is too short/paper delivery is impossible.	83	Paper delivery error
84	Printing paper is too short/paper delivery is possible.	85	Printing paper is too long/paper delivery is impossible.
86	Printing paper is too long/paper delivery is possible.	87	Ribbon and printing paper are combined badly.
91	Ribbon code is incorrect.	92	Ribbon was used to the end.
93	Ribbon is not wound.	94	Ribbon error/during print
95	Ribbon error/during paper delivery	EO	Mechanical transition time is exceeded.
FD	Key harness abnormal/ground short-circuited	FD	Key harness abnormal/open
FF	No emergency		

22. Head position data check

Page	8	Data		Address	03

※ The current head position is displayed in a data list.

Data	
E0	NULL
00	H0 position
02	H1 position
03	H2 position
04	H3 position
05	H4 position
FB	H−1 position

23. Roller position data check

Page	8	Data		Address	04

※ The current roller position is displayed in a data list.

Data	
E0	NULL
00	P0 Position
02	P1 Position
04	P2 Position

24. Mode control ROM version check

Page	7	Data		Address	01

※ The numeric value displayed in data is the ROM version at that time.

25. Mechanical control ROM version check

Page	8	Data		Address	01

※ The numeric value displayed in data is the ROM version at that time.
※ No data can be written using the PAUSE key.

26. Motor single-drive check

(1) Head motor

Page	8	Data		Address	1A

Data	
00	Stop
01※1	Head position UP
02※2	Head position DOWN
08	Home position

※1 The head position changes by one step every time the PAUSE button of the RM-95 is pressed.

※2 Do not perform the DOWN operation in head position-1. This may destroy the unit. If so, turn off the AC power immediately.

(2) Ribbon motor (Roller motor)

Page	8	Data		Address	1A

Data	
00	Stop
03※1	Roller position UP
04※2	Ribbon winding (continuous)

※1 The roller position changes by one step every time the PAUSE button of the RM-95 is pressed.

※2 The data 04 changes by one step the PAUSE button is continuous-drive.

(3) Stepping motor, fan motor, delivery arm position

Page	8	Data		Address	1A

Data	
00	Stop
05	Stepping motor rotation (continuous)
06	Stepping motor reverse-rotation (continuous)
09	Fan motor rotation
0B	Delivery arm position UP※

※ The delivery arm position changes by one step every time the PAUSE button is pressed.

27. F page address book

Adjustment address	Name	Function ( ) is the adjustment voltage output terminal.
30	COM-Y	Y/C separation and Y adjustment (CC115)
31	COM-C	Y/C separation and C adjustment (CC112)
32	AGCOF-LEV	AGC level adjustment (CC11)
33	AGC-GAIN	
34	APC-ADJ	APC free-running adjustment (CC225)
35	BFP-ADJ	Decoder (Y) level adjustment (CC212) (CC217)
36	COLOR	Color adjustment (CC16)
37	HUE	DAT adjustment (CC16)
38	DEC R-BAL	DEC R-BAL adjustment (CC5)
39	DEC B-BAL	DEC B-BAL adjustment (CC16)
3A	DLA	DLA adjustment (CC11)
3B		
3C	Check sam (L)	
3D	Check sam (H)	
3E		
3F		
40	P-RGB	
41	P-S·VS	
42	BOT-REF	BOT-REF level adjustment (CC704)
43	R-GAIN	R gain level adjustment (CC701) (CC5)
44	G-GAIN	G gain level adjustment (CC702) (CC11)
45	B-GAIN	B gain level adjustment (CC703) (CC16)
46	GAIN	
47	OFFSET	Offset level adjustment (CC705)
48		
49		
4A		
4B		
4C	Check sam (L)	
4D	Check sam (H)	
4E		
4F		
50	D/A-REF	D/A REF adjustment (IC704 ⑱, CN101 ⑤)
51	D/A-R	D/A-R level adjustment (VIDEO OUT)
52	D/A-B	D/A-B level adjustment (VIDEO OUT)
53	ENV-LEV	Encoder V level adjustment (CC810)
54	ENY-LEV	B encoder Y level adjustment (CC811)
55	ENC-LEV	Encoder chroma level adjustment (CC812)
56	ENR-LEV	Encoder R level adjustment (CC807)
57	ENG-LEV	Encoder G level adjustment (CC808)
58	ENB-LEV	Encoder B level adjustment (CC809)
59		
5A		
5B		
5C	Check sam(L)	
5D	Check sam(L)	
5E		
5F		

7-2. VIDEO CIRCUIT ADJUSTMENT (VA-14 BOARD)

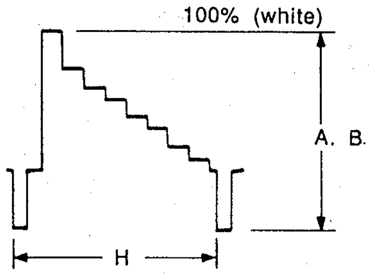
7-2-1. PLL Free-Running Adjustment

Conditions for adjustment	**Spec.**	**Adjustment**
· Mode: Input picture · Input signal: S VIDEO · Measurement equipment: Digital voltmeter	Measurement point: CC504 (VCO.CV) 0.0 ± 0.2 V DC	⊘ CV502

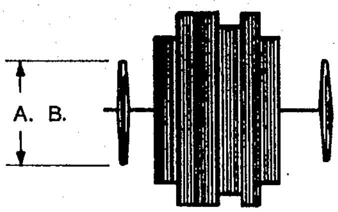
7-2-2. INT SYNC GEN Frequency Adjustment

Conditions for adjustment	**Spec.**	**Adjustment**
· Mode: Input picture · Input signal: Non-signal · Measurement equipment: Frequency counter Digital voltmeter	· Measurement point: CC502 (INT CLK) f = 14.18713 MHz ± 10 Hz	⊘ CV501
	· Measurement point: CC508 (PLL CV) 2.5 ± 1.5 V DC (MIN)	⊘ CV503

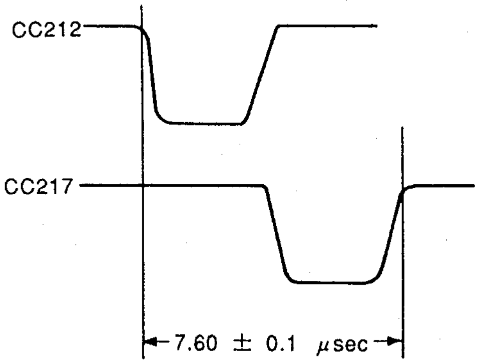
7-2-3. Y/C Separation and Y Adjustment

Conditions for adjustment	**Spec.**	**Adjustment**
· Mode: Input picture · Input signal: Color-bar (VIDEO) · Measurement equipment: Oscilloscope	Measurement point: CC115 (Y)  A ≒ 0.52 V p-p S VIDEO: Measure the level at CC115 (Y). The amplitude of A.(Vp-p) is approximately 0.52 V p-p. VIDEO: Adjust so that B is equal to A. A−B = ± 0.01 V p-p	Adjustment page: F Adjustment address: 30 (COM-Y)

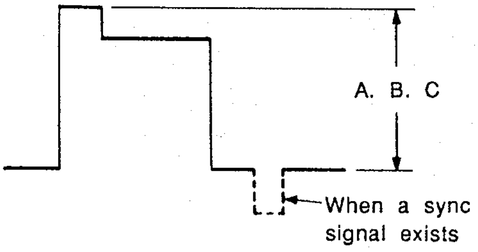
7-2-4. Y/C Separation and C Adjustment

Conditions for adjustment	Spec.	Adjustment
· Mode: Input picture · Input signal: Color-bar · Measurement equipment: Oscilloscope	Measurement point: CC112 (C)  A ≒ 300 mV p-p S VIDEO: Measure the burst level at CC112 (C). The amplitude of A.(Vp-p) is approximately 300 mV. VIDEO: Adjust so that B is equal to A. A−B = ± 10 mV p-p	Adjustment page: F Adjustment address: 31 (COM-C)

7-2-5. Decoder (Y) Level Adjustment

Conditions for adjustment	Spec.	Adjustment
· Mode: Input picture · Input signal: S VIDEO · Measurement equipment: Oscilloscope	Measurement point: CC212, CC217  Adjust the time between the falling edge of an H sync signal at CC212 (DEC-Y) and the rising edge of a BF pulse at CC217 (BFP).	Adjustment page: F Adjustment address: 35 (BFP-ADJ)

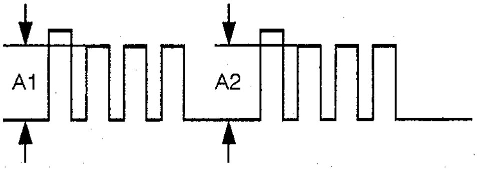
7-2-6. AGC Level Adjustment

Conditions for adjustment	Spec.	Adjustment
· Mode: Input picture · Input signal: Color-bar · Measurement equipment: Oscilloscope	Measurement point: CC11 (G OUT)  AGC OFF level, R.G.B input: Address 00 A = About 1.9 V p-p S VIDEO input: AGC OFF level in address(32) A−B = ± 0.05 V p-p (Adjust so that A is equal to B.) : AGC gain level in address(33) AGC ON level, R.G.B input: Address 00 A−C = ± 0.05 V p-p (Adjust so that A is equal to C.)	Adjustment page: F Adjustment address: After this adjustment, address 36(COLOR) is written by pressing PAUSE key.

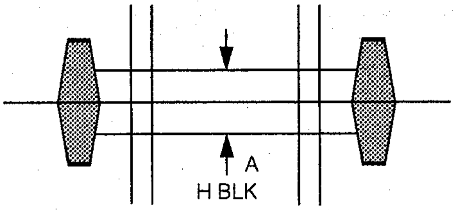
7-2-7. APC Free-Running Adjustment

Conditions for adjustment	Spec.	Adjustment
· Mode: Input picture · Input signal: Color-bar (S VIDEO) · Measurement equipment: Frequency counter	Measurement point: CC225 (APC) f = 4.433619 MHz ± 20 Hz	Adjustment page: A Adjustment address: 34 (APC-ADJ)

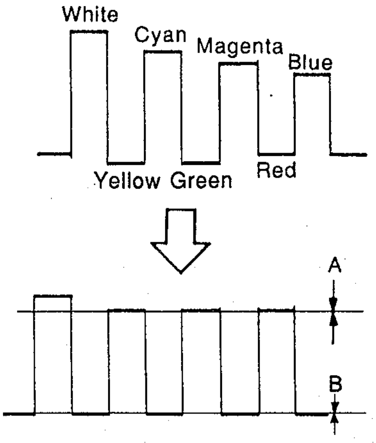
7-2-8. DAT Adjustment

Conditions for adjustment	Spec.	Adjustment
· Mode: Input picture · Input signal: Color-bar (S VIDEO) · Measurement equipment: Oscilloscope	Measurement point: CC16 (B OUT)  A1 = A2 ± 125 mV White, cyan, magenta, and blue should be flat and linear. Adjust so that the bottom value is equal.	Adjustment page: F Adjustment address: TI201

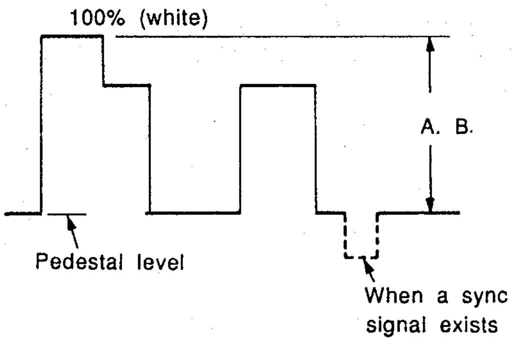
7-2-9. DLA Adjustment

Conditions for adjustment	Spec.	Adjustment	
· Mode: Input picture · Input signal: Special color-bar · Measurement equipment: Oscilloscope	Measurement point: CC11 (G OUT)  A < 120 mV p-p If the difference in level exists in each color, readjust the hue.	Adjustment page	F
		Adjustment address	3A (DLA)
		Adjust so that portion A is minimum.	

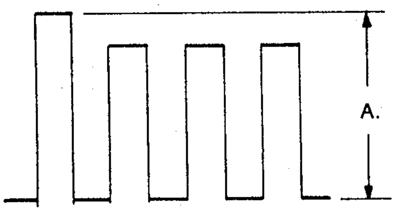
7-2-10. COLOR Adjustment

Conditions for adjustment	Spec.	Adjustment	
· Mode: Input picture · Input signal: Color-bar (S VIDEO) · Measurement equipment: Oscilloscope	Measurement point: CC16 (B OUT)  White Cyan Magenta Blue Yellow Green Red A B A < 100 mV p-p B < 100 mV p-p	Adjustment page	F
		Adjustment address	36 (COLOR)
		Adjust portions A and B to the minimum level so that each color level is linear.	

7-2-11. DEC R-BAL Adjustment

Conditions for adjustment	Spec.	Adjustment
· Mode: Input picture · Input signal: Color-bar · Measurement equipment: Oscilloscope	Measurement point: CC5 (R OUT)  100% (white) A. B. Pedestal level When a sync signal exists Adjust so that levels B and A at CC5 (R OUT) are equal. RGB input: A ≒ 1.9 V p-p S VIDEO input: A − B = ±0.05 V p-p	Adjustment page: F Adjustment address: 38 (DEC-R BAL)

7-2-12. DEC B-BAL Adjustment

Conditions for adjustment	Spec.	Adjustment
· Mode: Input picture · Input signal: Color-bar · Measurement equipment: Oscilloscope	Measurement point: CC16 (B OUT)  Adjust so that levels B and A at CC16 (B OUT) are equal. RGB input: A ≒ 1.9 V p-p S VIDEO input: A − B = ±0.05 V p-p	Adjustment page: F Adjustment address: 39 (DEC-B BAL)

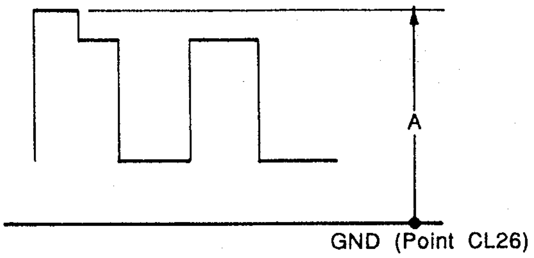
7-2-13. BOT-REF Level Adjustment

Conditions for adjustment	Spec.	Adjustment
· Mode: Input picture · Measurement equipment: Digital voltmeter	Measurement point: CC704 (VRB) 1.000 V ± 0.005 V DC	Adjustment page: F Adjustment address: 42 (BOT-REF)

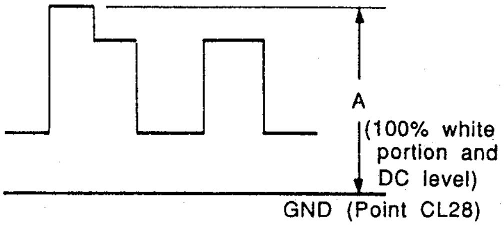
7-2-14. Offset Level Adjustment

Conditions for adjustment	Spec.	Adjustment
· Mode: Input picture · Measurement equipment: Digital voltmeter	Measurement point: CC705 (AD OST) 1.000 V ± 0.005 V DC	Adjustment page F Adjustment address 47 (OFFSET)

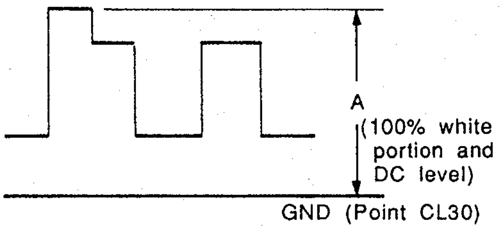
7-2-15. R Gain Level Adjustment

Conditions for adjustment	Spec.	Adjustment
· Mode: Input picture · Input signal: Color-bar (RGB) · Measurement equipment: Oscilloscope Digital voltmeter	Measurement point: CC5 (R OUT)  A ≒ 2.9 V DC (100% white portion and DC level) Adjust so that DC voltage B at CC701 (VRT-R) is equal to A. A − B = − 70 ± 25 mV DC.	Adjustment page F Adjustment address 43 (R-GAIN)

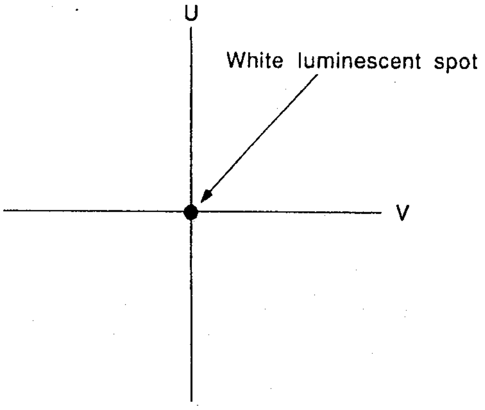
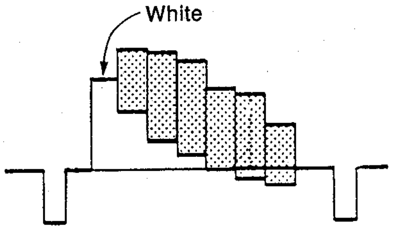
7-2-16. G Gain Level Adjustment

Conditions for adjustment	Spec.	Adjustment
· Mode: Input picture · Input signal: Color-bar (RGB) · Measurement equipment: Oscilloscope Digital voltmeter	Measurement point: CC11 (G OUT)  A ≒ 2.9 V DC (100% white portion and DC level) Adjust so that DC voltage B at CC702 (VRT-G) is equal to A. A − B = − 70 ± 25 mV DC	Adjustment page F Adjustment address 44 (G-GAIN)

7-2-17. B Gain Level Adjustment

Conditions for adjustment	Spec.	Adjustment
· Mode: Input picture · Input signal: Color-bar (RGB) · Measurement equipment: Oscilloscope Digital voltmeter	Measurement point: CC16 (B OUT)  A ≒ 2.9 V DC (100% white portion and DC level) Adjust so that DC voltage B at CC703 (VRT-B) is equal to A. A − B = − 75 ± 25 mV DC	Adjustment page: F Adjustment address: 45 (B-GAIN)

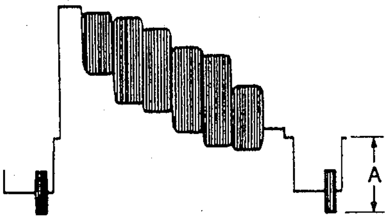
7-2-18. D/A (R), (B) Level Adjustment (IF-28 Board)

Conditions for adjustment	Spec.	Adjustment
· Input signal: Color-bar (S VIDEO) · Measurement equipment: Vectorscope Oscilloscope	Measurement point: VIDEO output terminal (J010)  The white luminescent spot coincides with the origin. · Set the gain of the vectorscope to the maximum position. · Adjust so that the luminescent spot gets nearest the intersection point of U and V axes.	Adjustment page: F Adjustment address: 51 (D/A-R) 52 (D/A-B)
For oscilloscope	 Adjust so that the chroma signal component leaking to the white-level portion of a video output signal waveform is minmum.	

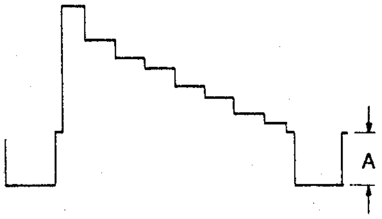
7-2-19. D/A REF Adjustment

Conditions for adjustment	Spec.	Adjustment
· Mode: Input picture · Input signal: Color-bar (S VIDEO) · Measurement equipment: Digital voltmeter	Measurement point: IC704 ⑱ or CN101 ⑤ 2.3 ± 0.1 V DC	Adjustment page F Adjustment address 50 (D/A REF)

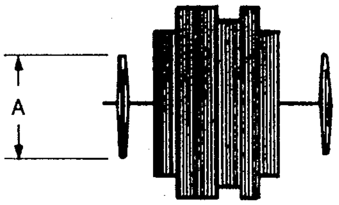
7-2-20. Encoder V Level Adjustment

Conditions for adjustment	Spec.	Adjustment
· Mode: Input picture · Input signal: Color-bar (S VIDEO) · Measurement equipment: Oscilloscope	Measurement point: CC810 (V-MONI)  A = 300 ± 10 mV p-p	Adjustment page F Adjustment address 53 (ENV-LEV)

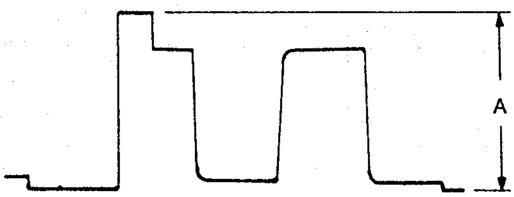
7-2-21. Encoder Y Level Adjustment

Conditions for adjustment	Spec.	Adjustment
· Mode: Input picture · Input signal: Color-bar (S VIDEO) · Measurement equipment: Oscilloscope	Measurement point: CC811 (Y-MONI)  A = 300 ± 10 m V p-p	Adjustment page F Adjustment address 54 (ENY-LEV)

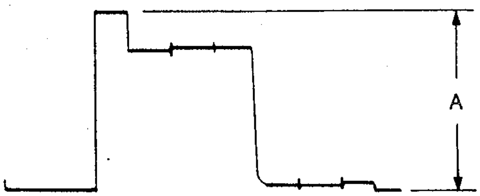
7-2-22. Encoder Chroma Level Adjustment

Conditions for adjustment	Spec.	Adjustment
· Mode: Input picture · Input signal: Color-bar (S VIDEO) · Measurement equipment: Oscilloscope	Measurement point: CC812 (C-MONI)  Adjust the burst level. A (burst level) = 300 ± 10 mV p-p	Adjustment page F Adjustment address 55 (ENC-LEV)

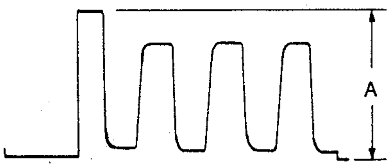
7-2-23. Encoder R level Adjustment

Conditions for adjustment	Spec.	Adjustment
· Mode: Input picture · Input signal: Color-bar (S VIDEO) · Measurement equipment: Oscilloscope	Measurement point: CC807 (R-MONI)  A = 0.700 ± 0.01 V p-p	Adjustment page: F Adjustment address: 56 (ENR-LEV)

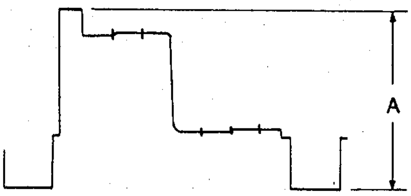
7-2-24. Encoder G Level Adjustment

Conditions for adjustment	Spec.	Adjustment
· Mode: Input picture · Input signal: Color-bar (S VIDEO) · Measurement equipment: Oscilloscope	Measurement point: CC808 (G-MONI)  A = 0.700 ± 0.01 V p-p	Adjustment page: F Adjustment address: 57 (ENG-LEV)

7-2-25. Encoder B Level Adjustment

Conditions for adjustment	Spec.	Adjustment
· Mode: Input picture · Input signal: Color-bar (S VIDEO) · Measurement equipment: Oscilloscope	Measurement point: CC809 (B-MONI)  A = 0.700 ± 0.01 V p-p	Adjustment page: F Adjustment address: 58 (ENB-LEV)

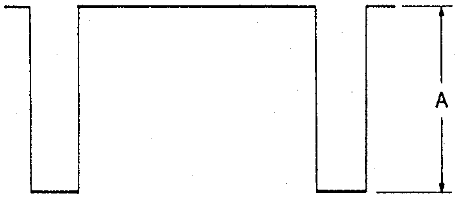
7-2-26. Output Sync ON G Confirmation

Conditions for adjustment	Spec.	Adjustment
· Mode: Input picture · Input signal: Color-bar (S VIDEO) · Measurement equipment: Oscilloscope	Measurement point: CC808 (G-MONI)  A = 1.0 ± 0.1 V p-p	

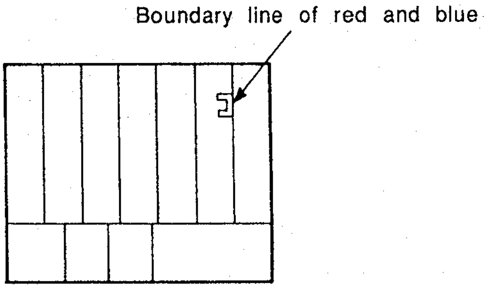
7-2-27. Input Sync ON G Confirmation

Conditions for adjustment	Spec.	Adjustment
· Input signal: Color-bar (RGB) · Measurement equipment: · Sync ON G	※ The monitor screen display should be normal.	

7-2-28. Output Sync Confirmation

Conditions for adjustment	Spec.	Adjustment
· Mode: Input picture · Input signal: Color-bar (S VIDEO) · Measurement equipment: Oscilloscope	Measurement point: CC813 (SYNC-MONI)  A = 1.0 ± 0.1 V p-p	

7-2-29. Monitor Display Position Adjustment

Conditions for adjustment	Spec.	Adjustment
· Mode: Input picture · Input signal: Color-bar	Measurement point: Check the monitor visually.  · Align the most right character ("⊐") on the monitor display with the position shown in the figure.	⊘ CV801

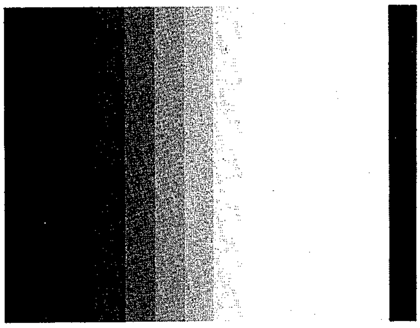
7-3. HEAD REPLACEMENT

7-3-1. Adjustment

1) Mechanical block

Thermal head replacement (Refer to "Printing the Test Signal by RM-95*".)

(1) Print two sheets of paper via the defective head using a stairstep signal (H) before replacing the thermal head. Use the second sheet of paper for comparison of uneven image density.
After the thermal head was replaced, print two sheets of paper using a stairstep signal(H). Adjust so that the second sheet of printed paper is equal in density to the second sheet of paper printed before replacement.

Conditions for adjustment	Spec.	Adjustment
· Mode: Memory picture※1 · Input signal: Stairstep signal (H)※2	Should be equal to the sample image. 	VR201※3

※1 Press the MEMORY IN or SOURCE/MEMORY button of the unit.
※2 Refer to the stairstep signal (H) in "Entering the Test Signal".
※3 Adjust using VR201 on the power board while pressing switch S705 on the HM board.
[Voltage ⊕(thick); voltage ⊖(thin)]

SONY®

COLOR VIDEO PRINTER

UP-1800EPM
UP-1850EPM

SERVICE MANUAL

SUPPLEMENT-2

Please add and replace your manual with this SUPPLEMENT-2.

SUBJECT

- SCHEMATIC DIAGRAM
- EXPLODED VIEWS
- ELECTRICAL PARTS LIST

1. CORRECT FOLLOWING ITEMS IN THE SERVICE MANUAL.

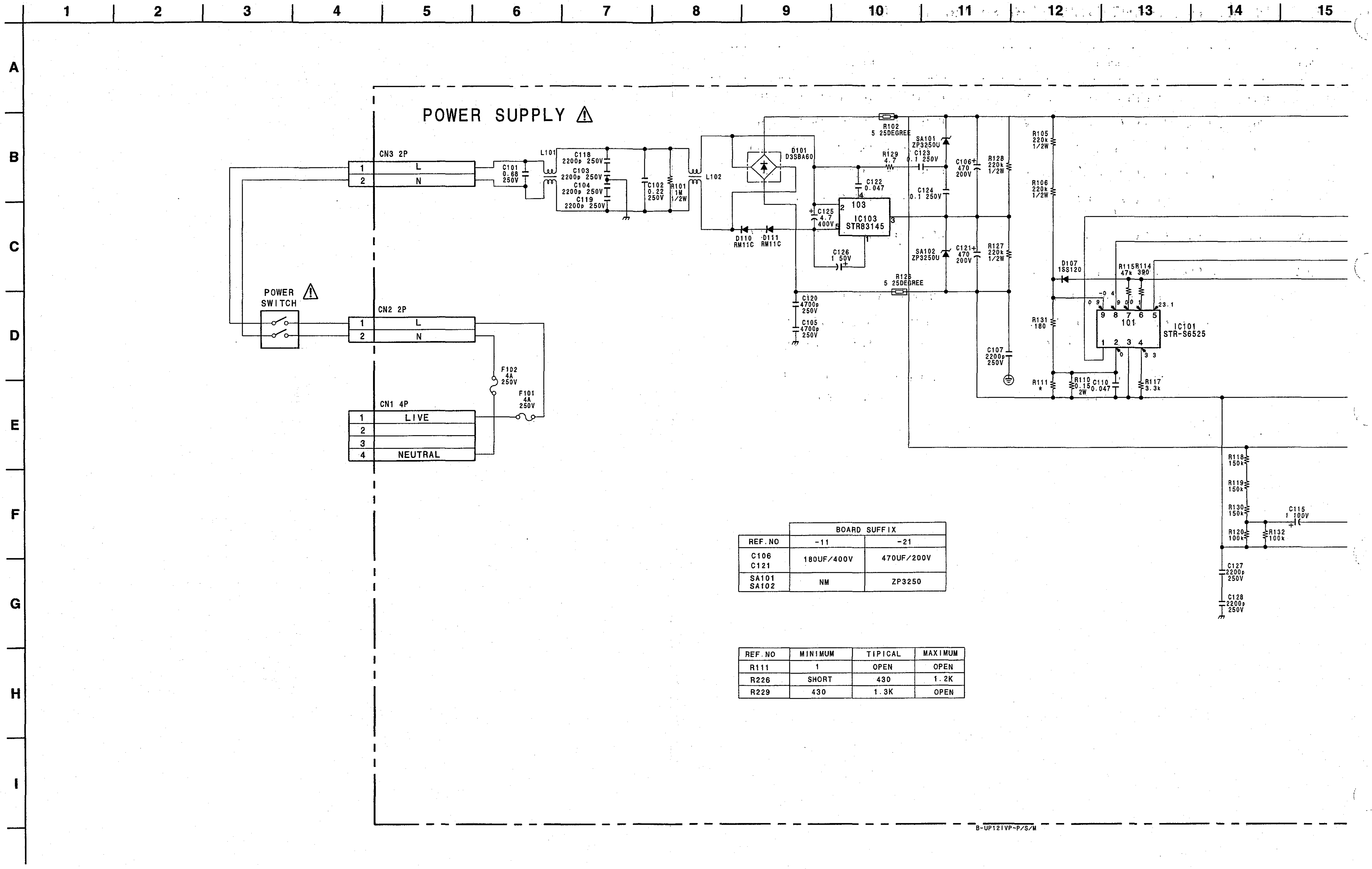
Page		Incorrect		Correct
222	R789	1-216-837-11 METAL 22k 5% 1/16W	⇨	1-216-839-11 METAL 33k 5% 1/16W
	R797	1-216-837-11 METAL 22k 5% 1/16W	⇨	1-216-839-11 METAL 33k 5% 1/16W
	R809	1-216-837-11 METAL 22k 5% 1/16W	⇨	1-216-839-11 METAL 33k 5% 1/16W
	R844	1-216-837-11 METAL 22k 5% 1/16W	⇨	1-216-839-11 METAL 33k 5% 1/16W
	R853	1-216-837-11 METAL 22k 5% 1/16W	⇨	1-216-839-11 METAL 33k 5% 1/16W
225	R818	1-216-089-91 METAL 47k 5% 1/10W	⇨	1-216-083-00 METAL 27k 5% 1/10W
242	7-2-2.	INT SYNC GEN Frequency Adjustment		
		• In case board suffix number -11 and -21		• In case board suffix number -31 and -32
		Measurement point : CC502 (INT CLK) f = 14.18713 ± 0.00001 MHz	⇨	Measurement point : CC501 (INT SC) f = 4.433619 ± 0.00001 MHz
		Measurement point : CC508 (PLL CV) 2.5 ± 1.5 V DC (MIN)	⇨	Measurement point : CC508 (PLL CV) 1.5 ± 0.7 V DC (MIN)

▨ : changed portion

Page 174-176

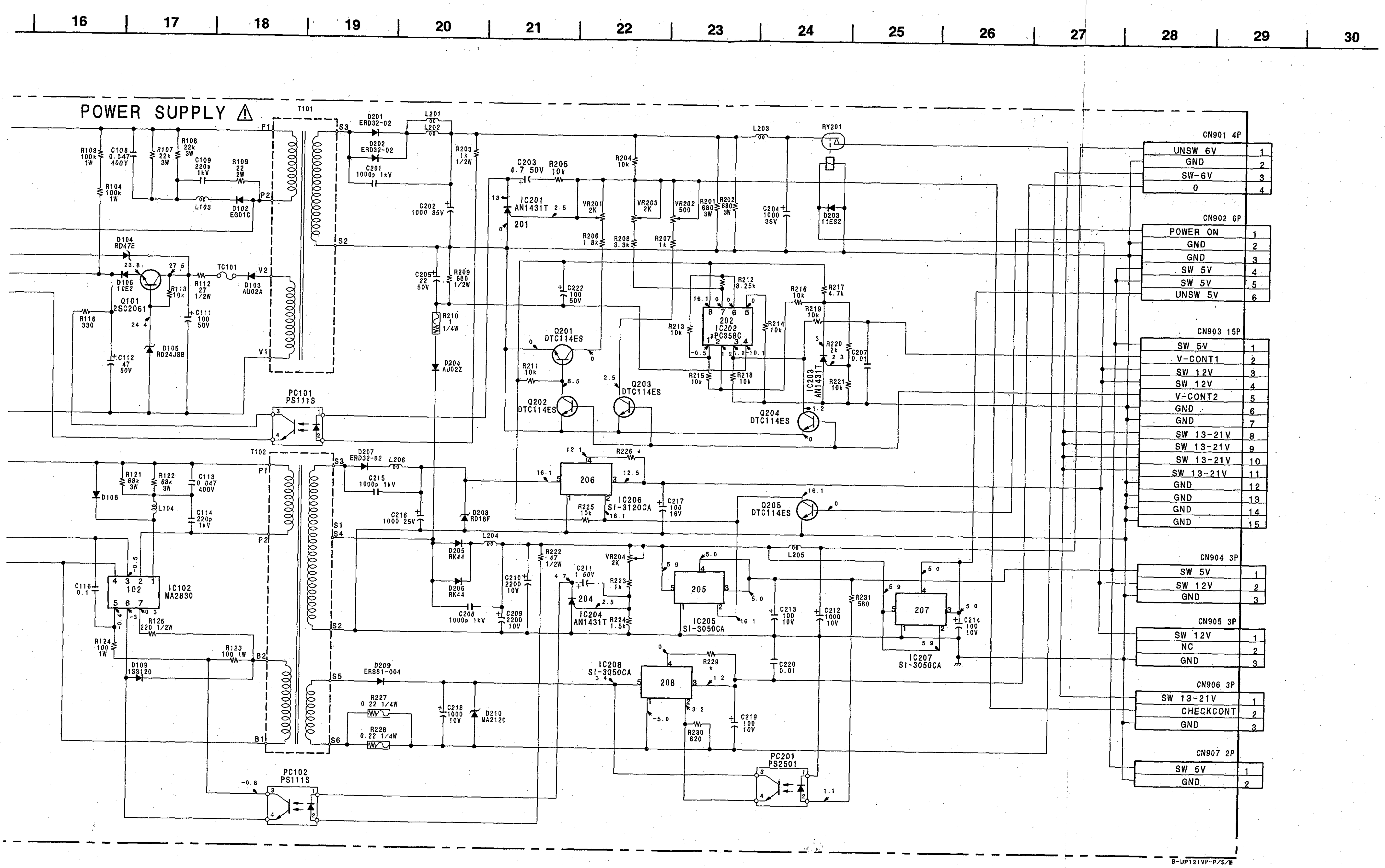
Correct the power supply circuit as follow.

POWER SUPPLY


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
H
I
POWER SUPPLY ⚠
CN3 2P
1
2
L
N
C101
0.68
250V
L101
C118
2200p 250V
C103
2200p 250V
C104
2200p 250V
C119
2200p 250V
C102
0.22
250V
R101
1M
1/2W
L102
D101
D3SBA60
D110
RM11C
D111
RM11C
R102
5 25DEGREE
R129
4.7
C123
0.1 250V
C122
0.047
C124
0.1 250V
SA101
ZP3250U
SA102
ZP3250U
C125
4.7
400V
103
IC103
STR83145
1
2
3
4
5
C126
1 50V
R126
5 25DEGREE
C120
4700p
250V
C105
4700p
250V
C106
470
200V
C121
470
200V
R128
220k
1/2W
R127
220k
1/2W
C107
2200p
250V
R105
220k
1/2W
R106
220k
1/2W
R131
180
R111
*
R110
0.15
2W
C110
0.047
R117
3.3k
D107
1SS120
R115
47k
R114
390
-0
4
0
9
9
0
0
1
23.1
0
3
3
9
8
7
6
5
101
1
2
3
4
IC101
STR-S6525
R118
150k
R119
150k
R130
150k
R120
100k
R132
100k
C115
1 100V
C127
2200p
250V
C128
2200p
250V
POWER SWITCH ⚠
CN2 2P
1
2
L
N
F102
4A
250V
F101
4A
250V
CN1 4P
1
2
3
4
LIVE
NEUTRAL
B-UP121VP-P/S/M

	BOARD SUFFIX	
REF.NO	-11	-21
C106 C121	180UF/400V	470UF/200V
SA101 SA102	NM	ZP3250

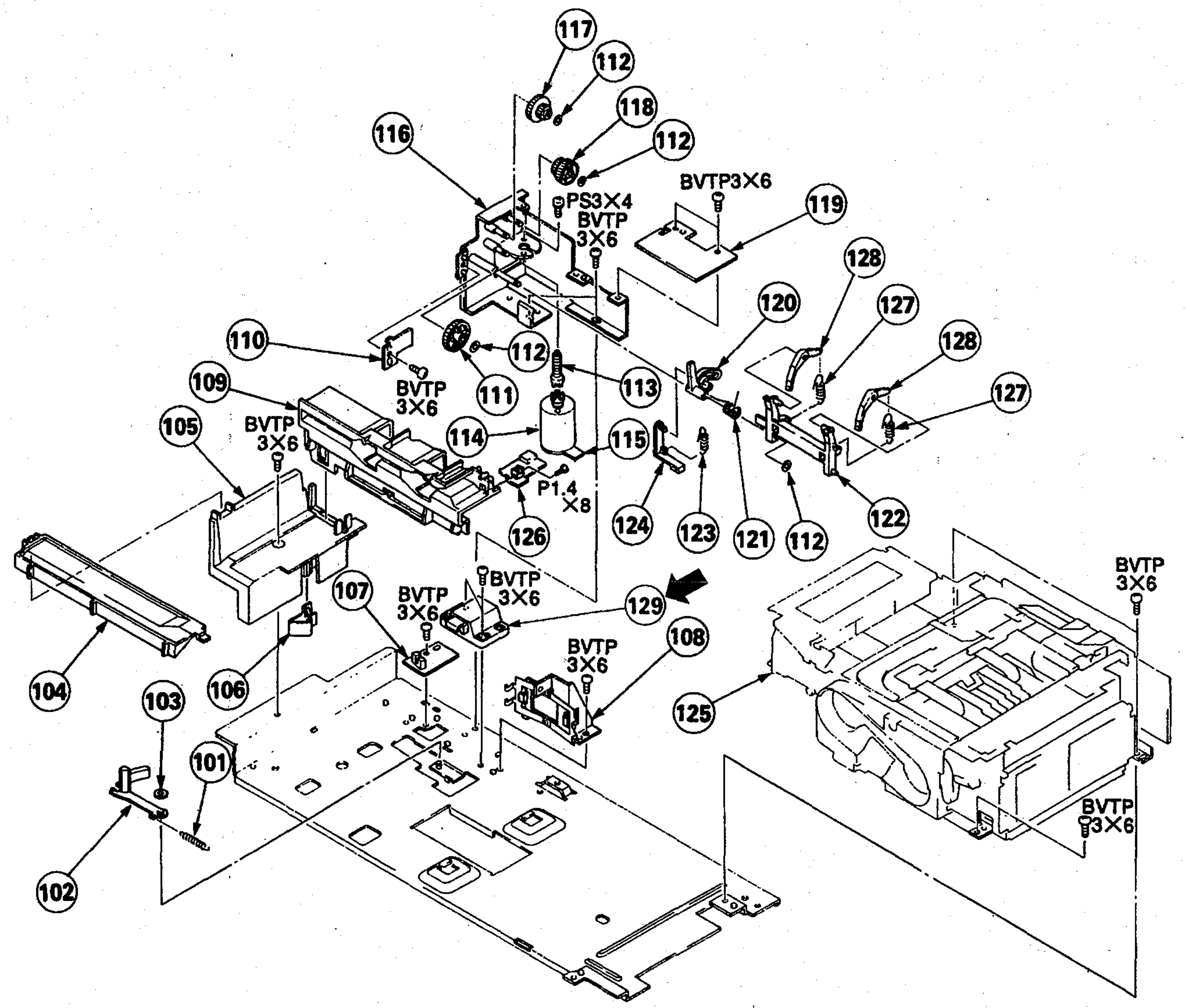
REF.NO	MINIMUM	TIPICAL	MAXIMUM
R111	1	OPEN	OPEN
R226	SHORT	430	1.2K
R229	430	1.3K	OPEN


16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
POWER SUPPLY ⚠
T101
P1
P2
S3
S2
V2
V1
D201 ERD32-02
D202 ERD32-02
L201
L202
C201 1000p 1kV
R203 1k 1/2W
C202 1000 35V
C205 22 50V
R209 680 1/2W
R210 1 1/4W
D204 AU02Z
R103 100k 1W
C108 0.047 400V
R107 22k 3W
R108 22k 3W
C109 220p 1kV
R109 22 2W
L103
D102 EG01C
R104 100k 1W
D104 RD47E
D106 10E2
Q101 2SC2061
R113 10k
R112 27 1/2W
TC101
D103 AU02A
R116 330
C112 47 50V
C111 100 50V
D105 RD24JSB
PC101 PS111S
C203 4.7 50V
R205 10k
IC201 AN1431T
201
VR201 2K
R204 10k
VR203 2K
VR202 500
R201 680 3W
R202 680 3W
C204 1000 35V
L203
RY201
D203 11ES2
R206 1.8k
R208 3.3k
R207 1k
C222 100 50V
Q201 DTC114ES
R211 10k
Q202 DTC114ES
Q203 DTC114ES
R212 8.25k
IC202 μPC358C
R213 10k
R214 10k
R215 10k
R218 10k
R216 10k
R217 4.7k
R219 10k
R220 2k
C207 0.01
R221 10k
IC203 AN1431T
Q204 DTC114ES
T102
P1
P2
B1
B2
S1
S4
S5
S6
D207 ERD32-02
L206
C215 1000p 1kV
C216 1000 25V
D208 RD18F
R226 *
206
IC206 SI-3120CA
R225 10k
C217 100 16V
Q205 DTC114ES
R121 68k 3W
R122 68k 3W
C113 0.047 400V
D108
L104
C114 220p 1kV
C116 0.1
IC102 MA2830
R125 220 1/2W
R124 100 1W
R123 100 1W
D109 1SS120
L204
D205 RK44
D206 RK44
C208 1000p 1kV
C210 2200 10V
C209 2200 10V
R222 47 1/2W
C211 1 50V
VR204 2K
R223 1k
204
IC204 AN1431T
R224 1.5k
205
IC205 SI-3050CA
L205
C213 100 10V
C212 1000 10V
R231 560
207
IC207 SI-3050CA
C214 100 10V
C220 0.01
D209 ERB81-004
R227 0.22 1/4W
R228 0.22 1/4W
C218 1000 10V
D210 MA2120
IC208 SI-3050CA
208
R229 *
R230 820
C219 100 10V
PC201 PS2501
PC102 PS111S
CN901 4P
UNSW 6V
GND
SW-6V
0
CN902 6P
POWER ON
GND
GND
SW 5V
SW 5V
UNSW 5V
CN903 15P
SW 5V
V-CONT1
SW 12V
SW 12V
V-CONT2
GND
GND
SW 13-21V
SW 13-21V
SW 13-21V
SW 13-21V
GND
GND
GND
GND
CN904 3P
SW 5V
SW 12V
GND
CN905 3P
SW 12V
NC
GND
CN906 3P
SW 13-21V
CHECKCONT
GND
CN907 2P
SW 5V
GND
B-UP121VP-P/S/M

Page 200

⬅ : added portion

5-3. CHASSIS ASSEMBLY(2)

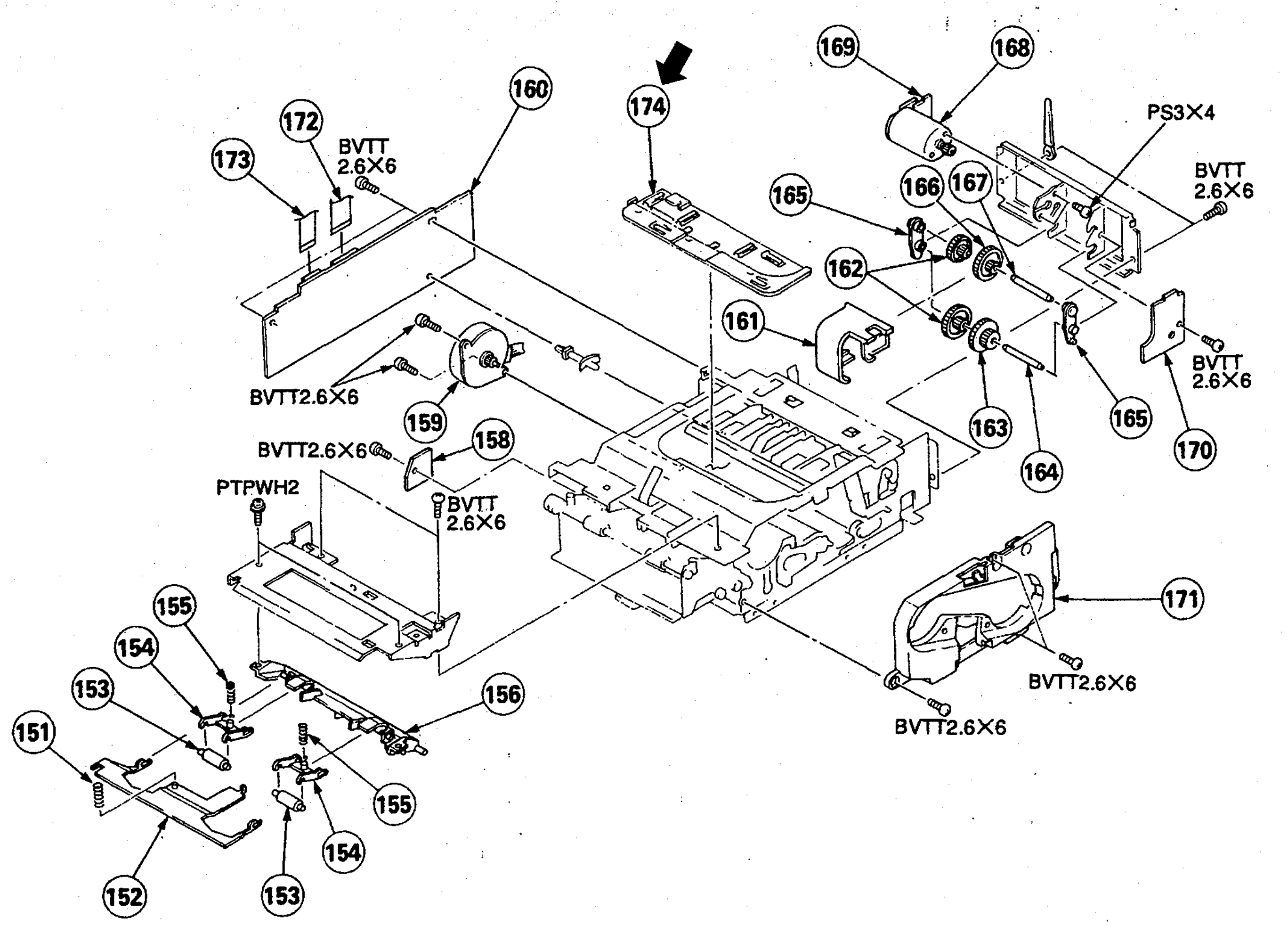

117
112
118
112
116
PS3X4
BVTP 3X6
BVTP3X6
119
128
120
127
128
110
112
113
111
BVTP 3X6
109
127
105
BVTP 3X6
114
115
P1.4 X8
126
124
123
121
112
122
BVTP 3X6
107
BVTP 3X6
129
BVTP 3X6
108
BVTP 3X6
104
103
106
125
101
BVTP 3X6
102

Ref.No	PartNo.	Description	Remark
101	3-183-184-01	SPRING, EXTENSION	
102	3-183-185-02	LEVER, PAPER SENSOR	
103	3-325-697-01	WASHER	
104	3-183-240-01	GUIDE, EXIT	
105	3-183-253-01	GUIDE, TRAY	
106	3-183-181-01	SPRING, TRAY	
107	*A-8275-444-A	SW-42 BOARD, COMPLETE	
108	X-3167-310-1	COUNTREMEASURE ASSY	
109	3-183-610-01	COVER	
110	*A-8275-443-A	SW-39 BOARD, COMPLETE	
111	X-3167-307-1	SUB GEAR ASSY, BOSS	
112	4-926-219-02	RING (DIA.2.3), RETAINING	
113	3-950-038-01	GEAR, WORM	
114	X-3942-172-1	MOTOR ASSY, RIBBON	
115	*1-650-853-12	SU-10 BOARD	
116	X-3167-308-2	SUB ASSY, MOTOR BRACKET	
117	3-950-040-01	GEAR (2), RD	
118	3-950-039-01	GEAR (1), RD	
119	*A-8275-445-A	DUS-12 BOARD, COMPLETE	
120	3-183-228-02	LINK	
121	3-183-218-02	SPRING, TORSION	
122	3-183-251-02	ARM	
123	3-183-176-01	SPRING, EXTENSION	
124	3-183-229-02	LEVER, TRAY LOCK	
125	*A-8267-804-A	MD (P231) ASSY	
126	*A-8275-442-A	SW-41 BOARD, COMPLETE	
127	3-183-602-01	SPRING, TENSION COIL	
128	3-183-603-02	LEVER, SUPPORT	
129	3-183-659-02	LOCK PUSH LATCH	⬅

Page 201

⬅ : added portion

5-4. MECHANISM DECK ASSEMBLY(1)

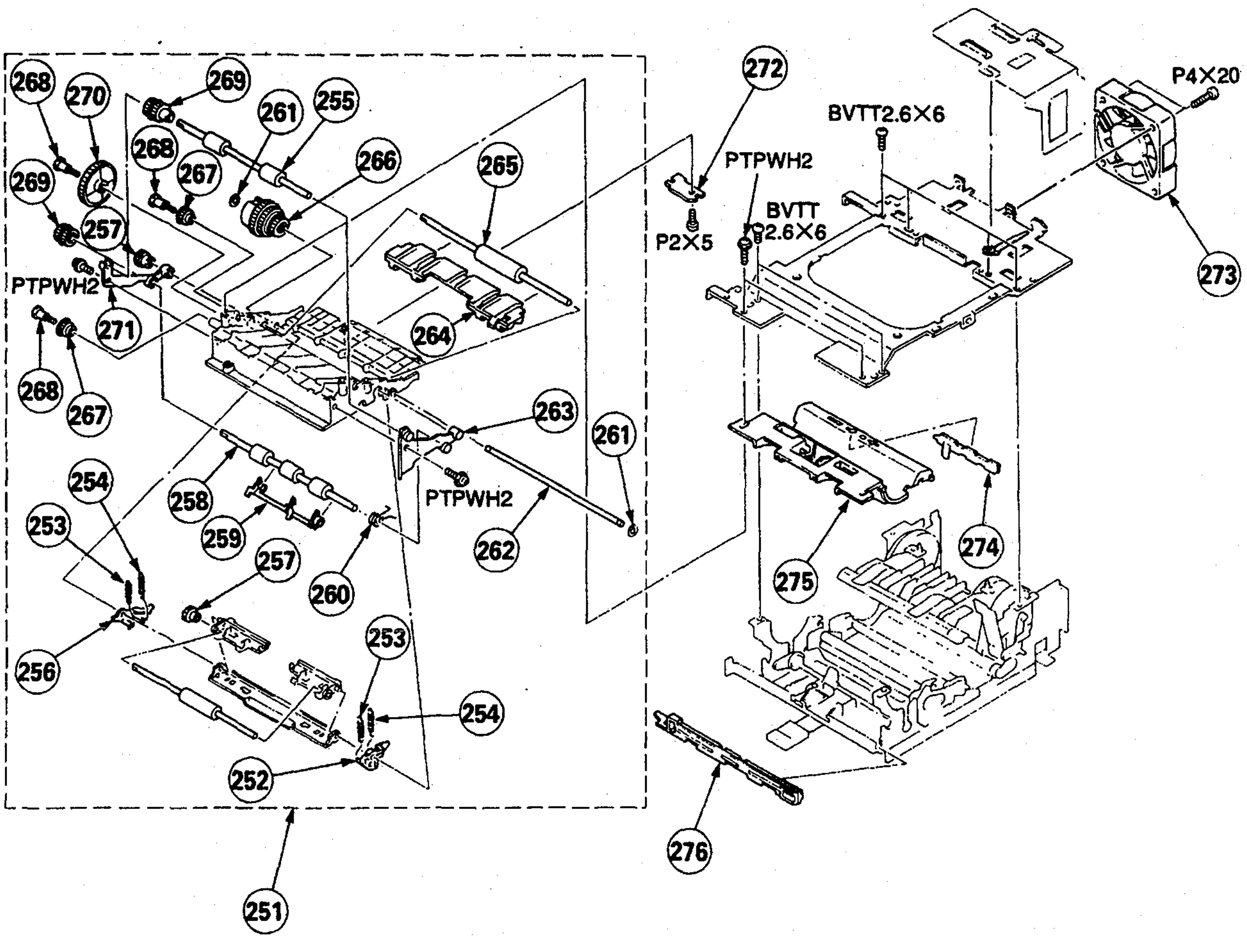

169
168
160
174
PS3X4
172
BVTT 2.6X6
173
BVTT 2.6X6
165
166
167
162
161
BVTT2.6X6
159
158
BVTT2.6X6
163
165
BVTT 2.6X6
170
164
PTPWH2
BVTT 2.6X6
171
155
154
153
156
BVTT2.6X6
BVTT2.6X6
151
155
154
152
153

Ref.No	PartNo.	Description	Remark
151	3-183-629-01	SPRING, COMPRESSION (PAPER A)	
152	3-183-605-01	SENSOR LEVER	
153	3-950-009-01	ROLLER, PAPER	
154	3-950-010-01	ARM, PAPER ROLLER	
155	3-950-013-01	SPRING, COMPRESSION	
156	3-183-609-02	GUIDE, UPPER	
158	*A-8275-441-A	SW-213 BOARD, COMPLETE	
159	X-3942-126-1	MOTOR ASSY, STEPPING	
160	*A-8275-496-A	HM-22P(H) BOARD, COMPLETE	
161	*3-952-505-01	GUARD, HEAD GEAR	
162	3-950-019-01	GEAR (A), HEAD DRIVE	
163	3-950-015-01	GEAR (B), HEAD DRIVE	
164	*3-950-020-01	SHAFT, HEAD DRIVE GEAR	
165	*3-950-017-01	HOLDER, HEAD DRIVE GEAR	
166	3-956-727-01	GEAR (E), HEAD DRIVE	
167	*3-950-214-01	SHAFT (S), HEAD DRIVE GEAR	
168	X-3942-122-1	MOTOR, HEAD DRIVE GEAR ASSY	
169	*A-8275-435-A	SW-215 BOARD, COMPLETE	
170	*A-8275-436-A	SW-212 BOARD, COMPLETE	
171	X-3167-377-1	GUIDE ASSY, CASSETTE ENTRANCE	
172	1-765-052-11	WIRE, FLAT TYPE (16 CORE)	
173	1-765-051-11	WIRE, FLAT TYPE (7 CORE)	
174	3-952-129-02	CLAMP, HEAD HARNESS	⬅

Page 203

⬅ : **added portion**

5-6. MECHANISM DECK ASSEMBLY(3)


268
270
269
261
255
266
265
268
267
269
257
PTPWH2
271
264
268
267
263
261
PTPWH2
254
258
253
259
262
257
260
256
253
254
252
251
272
BVTT2.6X6
PTPWH2
BVTT
2.6X6
P2X5
P4X20
273
274
275
276

Ref.No	Part No.	Description	Remark
251	*A-8267-975-B	PAPER ASSY	
252	*3-949-984-11	LEVER (R), RELEASE	
253	3-949-994-01	SPRING, TENSION	
254	3-949-996-01	SPRING (RELEASE LEVER), TENSION	
255	3-183-205-01	ROLLER	
256	*3-949-983-11	LEVER (L), RELEASE	
257	3-949-987-01	GEAR (16D)	
258	3-183-607-01	ROLLER K	
259	*3-949-986-01	RETAINER, PAPER	
260	3-183-204-01	SP (EP), RETAINER	
261	4-926-219-02	RING (DIA. 2. 3), RETAINING	
262	*3-949-990-01	SHAFT, LIMITER	
263	3-183-230-01	SHAFT RETAINER R (EP)	
264	*3-949-985-01	SHUTTER, PAPER	
265	3-949-982-01	ROLLER (F)	
266	A-7018-141-A	LIMITER BLOCK ASSY	
267	3-949-989-01	GEAR (16F)	
268	3-950-001-01	SCREW, STEP	
269	3-949-988-01	GEAR (20-21)	
270	3-183-206-01	GEAR	
271	3-183-231-01	SHAFT RETAINER L (EP)	
272	*A-8275-433-A	SW-208 BOARD, COMPLETE	
273	1-541-684-41	MOTOR, DC	
274	*A-8275-434-A	SW-211 BOARD, COMPLETE	
275	*3-191-701-01	GUIDE (PRT1), CASSETTE	⬅
276	3-183-232-01	GUIDE, TRAY	

Page 226-227

There are many mistakes in Switching Regulator part list.
Therefore, use the following Switching regulator part list instead.

SWITCHING REGULATOR

Ref. No. or Q'ty	Part No.	SP	Description
1pc	⚠ 1-413-946-21	o	SWITCHING REGULATOR
2pcs	9-904-821-01	s	FUSE CLIP
1pc	9-907-116-01	o	HEAT SINK (IC101,IC102)
1pc	9-907-117-01	o	HEAT SINK (IC103)
3pcs	9-907-118-01	o	HEAT SINK (IC205,IC206,IC207,IC208)
1pc	9-907-119-01	o	PRINTED CIRCUIT BOARD
1pc	9-907-120-01	s	SPACER
2pcs	9-907-121-01	o	SHEET, INSULATING
1pc	9-907-122-01	o	SHEET, INSULATING
C101	1-137-472-11	s	FILM 0.68uF 250V
C102	9-902-038-01	s	FILM 0.22uF 250V
C103	9-909-242-01	s	CERAMIC 1000PF 250V
C104	9-909-242-01	s	CERAMIC 1000PF 250V
C105	9-907-096-01	s	CERAMIC 4700PF 250V
C106		s	ELECT 220uF 400V
C107	9-900-522-01	s	CERAMIC 2200PF 250V
C108	9-900-525-01	s	FILM 0.047uF 630V
C109	9-907-098-01	s	CERAMIC 220PF 1KV
C110	1-130-491-00	s	FILM 0.047uF 50V
C111	1-124-122-11	s	ELECT 100uF 50V
C112	1-126-967-11	s	ELECT 47uF 50V
C113	9-900-525-01	s	FILM 0.047uF 630V
C114	9-907-098-01	s	CERAMIC 220PF 1KV
C115	1-126-964-11	s	ELECT 10uF 50V
C116	1-130-495-00	s	FILM 0.1uF 50V
C118	9-909-242-01	s	CERAMIC 1000PF 250V
C119	9-909-242-01	s	CERAMIC 1000PF 250V
C120	9-907-096-01	s	CERAMIC 4700PF 250V
C121		s	ELECT 220uF 400V
C122	1-130-491-00	s	FILM 0.047uF 50V
C123	1-136-189-00	s	FILM 0.1uF 250V
C124	1-136-189-00	s	FILM 0.1uF 250V
C125	9-907-099-01	s	FILM 4.7uF 400V
C126	1-124-903-11	s	FILM 1uF 50V
C201	9-907-113-01	s	CERAMIC 1000PF 1KV
C202	9-907-114-01	s	ELECT 1000uF 35V
C203	1-124-927-11	s	ELECT 4.7uF 100V
C204	9-907-114-01	s	ELECT 1000uF 35V
C205	1-126-233-11	s	ELECT 22uF 50V
C207	1-130-483-00	s	FILM 0.01uF 50V
C208	9-907-113-01	s	CERAMIC 1000PF 1KV
C209	1-126-927-11	s	ELECT 2200uF 10V
C210	1-126-927-11	s	ELECT 2200uF 10V
C211	1-124-903-11	s	ELECT 1uF 50V
C212	1-126-926-11	s	ELECT 1000uF 10V
C213	1-126-933-11	s	ELECT 100uF 16V
C214	1-126-933-11	s	ELECT 100uF 16V
C215	9-907-113-01	s	CERAMIC 1000PF 1KV
C216	1-124-557-11	s	ELECT 1000uF 25V
C217	1-126-933-11	s	ELECT 100uF 16V
C218	1-126-926-11	s	ELECT 1000uF 10V
C219	1-126-933-11	s	ELECT 100uF 16V
C220	1-130-483-00	s	FILM 0.01uF 50V
C222	1-124-122-11	s	ELECT 100uF 50V
CN1	9-907-104-01	s	CONNECTOR 4P
CN2	9-907-105-01	s	CONNECTOR 2P
CN3	9-907-105-01	s	CONNECTOR 2P
CN901	1-560-892-00	s	CONNECTOR 4P
CN902	1-560-894-00	s	CONNECTOR 6P
CN903	1-568-702-11	s	CONNECTOR 15P
CN904	1-506-468-11	s	CONNECTOR 3P

(SWITCHING REGULATOR)

Ref. No. or Q'ty	Part No.	SP	Description
CN905	1-506-468-11	s	CONNECTOR 3P, BLACK
CN906	1-564-013-31	s	CONNECTOR 3P, RED
CN907	1-568-779-11	s	CONNECTOR 2P
D101	8-719-500-58	s	BRIGE DIODE D3SBA60
D102	8-719-030-25	s	DIODE EG01C-V0
D103	8-719-313-16	s	DIODE AU02A
D104	9-907-090-01	s	DIODE RD47E
D105	8-719-114-97	s	DIODE RD24JSB
D106	8-719-200-82	s	DIODE 11ES2
D107	1-806-836-11	s	DIODE MA165
D108	8-719-304-63	s	DIODE RM11C
D109	1-806-836-11	s	DIODE MA165
D110	8-719-304-63	s	DIODE RM11C
D111	8-719-304-63	s	DIODE RM11C
D201	8-719-501-34	s	DIODE S3VC40R
D202	8-719-501-34	s	DIODE S3VC40R
D203	8-719-200-82	s	DIODE 11ES2
D204	8-719-313-16	s	DIODE AU02A
D205	9-903-219-01	s	DIODE RK44
D206	9-903-219-01	s	DIODE RK44
D207	8-719-501-34	s	DIODE S3VC40R
D208	8-719-160-68	s	DIODE RD18FB2
D209	8-719-981-00	s	DIODE ERC81-004
D210	9-904-799-01	s	DIODE MA2120
F101	9-907-103-01	s	FUSE 4A 250V
F102	9-907-103-01	s	FUSE 4A 250V
IC101	8-749-924-40	s	IC STR-S6525
IC102	8-759-977-63	s	IC MA2830
IC103	8-749-923-66	s	IC STR-83145
IC201	8-759-420-19	s	IC AN1431T25
IC202	8-759-135-80	s	IC UPC358C
IC203	8-759-420-19	s	IC AN1431T25
IC204	8-759-420-19	s	IC AN1431T25
IC205	8-749-920-43	s	IC SI-3050CA
IC206	8-749-921-21	s	IC SI-3120CA
IC207	8-749-920-43	s	IC SI-3050CA
IC208	8-749-920-43	s	IC SI-3050CA
L101	9-907-102-01	s	FILTER, LINE
L102	9-907-102-01	s	FILTER, LINE
L103	9-904-796-01	s	BEAD CORE
L104	9-904-796-01	s	BEAD CORE
L201	9-902-553-01	s	BEAD CORE
L202	9-902-553-01	s	BEAD CORE
L203	9-907-112-01	s	COIL, CHOKE 10uH
L204	9-902-553-01	s	BEAD CORE
L205	9-907-112-01	s	COIL, CHOKE 10uH
L206	9-902-553-01	s	BEAD CORE
PC101	8-749-923-50	s	PHOTOCOUPLER PC111YS
PC102	8-749-923-50	s	PHOTOCOUPLER PC111YS
PC201	8-719-161-00	s	PHOTOCOUPLER PS2501-1-H
Q101	9-904-781-01	s	TRANSISTOR 2SC2061
Q201	8-729-900-80	s	TRANSISTOR DTC114ES
Q202	8-729-900-80	s	TRANSISTOR DTC114ES
Q203	8-729-900-80	s	TRANSISTOR DTC114ES
Q204	8-729-900-80	s	TRANSISTOR DTC114ES
Q205	8-729-900-80	s	TRANSISTOR DTC114ES
R101	1-202-719-00	s	COMP 1M 1/2W
R102	9-904-783-01	s	THERMISTOR 5

(SWITCHING REGULATOR)

Ref. No. or Q'ty	Part No.	SP	Description
R103	1-218-642-11	s	METAL 100K 1W
R104	1-218-642-11	s	METAL 100K 1W
R105	1-260-127-11	s	CARBON 220K 1/2W
R106	1-260-127-11	s	CARBON 220K 1/2W
R107	1-215-925-11	s	METAL 22K 3W
R108	1-215-925-11	s	METAL 22K 3W
R109	1-215-882-00	s	METAL 22 2W
R110	9-907-093-01	s	WIREWOUND 0.15 2W
R111	9-907-094-01	s	RESISTOR 1/2W
R112	1-260-080-11	s	CARBON 27 1/2W
R113	1-247-855-31	s	CARBON 10K 1/4W
R114	1-249-412-11	s	CARBON 390 1/4W
R115	1-247-871-11	s	CARBON 47K 1/4W
R116	1-249-411-11	s	CARBON 330 1/4W
R117	1-249-423-11	s	CARBON 3.3K 1/4W
R118	1-247-883-00	s	CARBON 150K 1/4W
R119	1-247-883-00	s	CARBON 150K 1/4W
R120	1-240-441-11	s	CARBON 100K 1/4W
R121	1-215-928-11	s	METAL 68K 3W
R122	1-215-928-11	s	METAL 68K 3W
R123	1-215-863-11	s	METAL 100 1W
R124	1-215-863-11	s	METAL 100 1W
R125	1-260-091-11	s	CARBON 220 1/2W
R126	9-904-783-01	s	THERMISTOR 5
R127	1-260-127-11	s	CARBON 220K 1/2W
R128	1-260-127-11	s	CARBON 220K 1/2W
R129	2-249-389-11	s	CARBON 4.7 1/4W
R130	1-247-883-00	s	CARBON 150K 1/4W
R131	1-249-408-11	s	CARBON 180 1/4W
R132	1-240-441-11	s	CARBON 100K 1/4W
R201	1-215-916-00	s	METAL 680 3W
R202	1-215-916-00	s	METAL 680 3W
R203	1-260-099-11	s	CARBON 1K 1/2W
R204	1-247-855-31	s	CARBON 10K 1/4W
R205	1-247-855-31	s	CARBON 10K 1/4W
R206	1-249-420-11	s	CARBON 1.8K 1/4W
R207	1-249-417-11	s	CARBON 1K 1/4W
R208	1-249-423-11	s	CARBON 3.3K 1/4W
R209	1-249-415-11	s	CARBON 680 1/2W
R210	9-902-556-01	s	RES, FUSIBLE 1 1/4W
R211	1-247-855-31	s	CARBON 10K 1/4W
R212	9-904-801-01	s	METAL 8.25K 1/4W
R213	1-247-855-31	s	CARBON 10K 1/4W
R214	1-247-855-31	s	CARBON 10K 1/4W
R215	1-247-855-31	s	CARBON 10K 1/4W
R216	1-247-855-31	s	CARBON 10K 1/4W
R217	1-249-425-11	s	CARBON 4.7K 1/4W
R218	1-247-855-31	s	CARBON 10K 1/4W
R219	1-247-855-31	s	CARBON 10K 1/4W
R220	1-215-428-00	s	METAL 2K 1/4W
R221	1-214-753-00	s	METAL 10K 1/4W
R222	1-260-083-11	s	CARBON 47K 1/2W
R223	1-249-417-11	s	CARBON 1K 1/4W
R224	1-249-419-11	s	CARBON 1.5K 1/4W
R225	1-247-855-31	s	CARBON 10K 1/4W
R226	9-907-107-01	s	RESISTOR 430 14W
R227	9-907-108-01	s	RES, FUSIBLE 0.22 14W
R228	9-907-108-01	s	RES, FUSIBLE 0.22 14W
R229	9-907-109-01	s	RESISTOR 1.3K 14W
R230	1-249-416-11	s	CARBON 820 1/4W
R231	1-249-414-11	s	CARBON 560 1/4W
RY201	9-907-115-01	s	RELAY
T101	9-907-100-01	s	SWITCHING
T102	9-907-101-01	s	SWITCHING
TC101	9-907-092-01	s	THERMAL CUT OFF M135
VR201	9-907-110-01	s	RES, VAR CARBON 2K
VR202	9-907-111-01	s	RES, VAR CARBON 500
VR203	1-238-570-11	s	RES, VAR CARBON 2.2K
VR204	1-238-570-11	s	RES, VAR CARBON 2.2K